SESSIONAL PAPERS.

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THIRD SESSION

OF THE

TWELFTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO.

SESSION 1911.

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LIST OF SESSIONAL PAPERS

PRESENTED TO THE HOUSE DURING THE SESSION.

TITLE.	No.	REMARKS.
Accounts, Public	1	*Printed.*
Agricultural College, Report	29	"
Agricultural and Experimental Union, Report	31	"
Agricultural Societies, Report	43	"
Archives, Report	65	"
Auditor, Statements	54	"
Bee-Keepers, Report	37	*Printed.*
Births, Marriages and Deaths, Report	19	"
Blind Institute, Report, Part of	16	"
Children, Neglected, Report	26	*Printed.*
Colonization, Report	64	"
Corn Growers, Report	35	"
Dairymen, Report	38	*Printed.*
Dairying in Ontario	57	*Printed for distribution only.*
Deaf and Dumb Institute, Report, part of	16	*Printed.*
Division Courts, Report	5	"
Education, Report	16	*Printed.*
Education, Orders in Council	51	*Not Printed.*
Entomological Society, Report	36	*Printed.*
Elections, Returns	50	"
Estimates, 1911-1912	2	"
Factories, Report	46	*Printed.*
Farmers' Institutes, Report	40	"
Farming Opportunities	58	*Printed for distribution only.*
Feeble-Minded, Report	23	*Printed.*
Fish and Game, Report	13	"
Fruit Branch, Report	33	"
Fruit Growers', Report	32	"
Game and Fisheries, Report	13	*Printed.*
Game Wardens, 1909-1910	72	*Not Printed.*
Gaols and Prisons, Report	25	*Printed.*

Title.	No.	Remarks.
Health, Report	20	*Printed.*
Highway Improvement, Report	14	"
Horticultural Societies, Report	44	"
Hospitals and Charities, Report	24	"
Hospitals for Idiots, Report	22	"
Hospitals for Insane, Report	21	"
Hydro-Electric Power Commission, Report	48	"
Hydro-Electric Power Commission, uniform system of accounting, etc.	67	*Not Printed.*
Hydro-Electric Power Commission, Institutions supplied with power by	68	"
Hydro-Electric -Power Commission, damage done to machinery, etc.	69	"
Hydro-Electric Power Commission, how much power called for by, with Ontario Power Company	70	"
Hydro-Electric Power Commission, municipalities which have entered into contracts with	71	"
Hydro-Electric Power Commission, from what date entitled to payment by City of Toronto	74	"
Idiots and Epileptics, Report	22	*Printed.*
Industries, Report	45	"
Infant Mortality, Report	60	"
Insane, Hospitals, Report	21	"
Insurance, Report	10	"
Labour, Report	15	*Printed.*
Land, Forests and Mines, Report	3	"
Legal Offices, Report	6	"
Library, Report	52	"
Liquor License Acts, Report	27	"
Live Stock Associations, Report	39	"
Loan Corporations, Report	11	"
Mines, Report	4	*Printed.*
New Ontario, situation, etc.	56	*Printed for distribution only.*
Ontario Railway and Municipal Board, Report	49	*Printed.*
Ontario Readers, tenders, correspondence, etc	73	"
Ontario Veterinary College, Report	30	"
Provincial Archives, Report	65	*Printed.*
Provincial Municipal Auditor, Report	8	"
Provincial Secretary's Department, employees in	61	*Not Printed.*
Public Accounts	1	*Printed.*
Public Institutions, tenders for supplies for	62	*Not Printed.*
Public Works, Report	12	*Printed.*

TITLE.	No.	REMARKS.
Queen Victoria Niagara Falls Park, Report	9	*Printed.*
Railway and Municipal Board, Report	49	*Printed.*
Registrar-General, Report	19	"
Registry Offices, Inspection, Report	7	"
Secretary and Registrar, Report	18	*Printed.*
Statute Commission, Expenditure on	66	*Not Printed.*
Statute Distribution	63	"
Surrogate Court, Orders in Council	55	"
Temiskaming and N. O. Railway, Report	47	*Printed.*
Toronto University, Report	17	"
Vegetable Growers, Report	34	*Printed.*
Veterinary College, Report	30	"
Women's Institutes, Report	41	*Printed.*
Women's Institutes, Hand-Book	59	*Printed for distribution only.*

LIST OF SESSIONAL PAPERS

Arranged in Numerical Order with their Titles at full length; the dates when Ordered and when presented to the Legislature; the name of the Member who moved the same, and whether Ordered to be Printed or not.

CONTENTS OF PART I.

No. 1... Public Accounts of the Province, for the year ended 31st October, 1910. Presented to the Legislature, 26th January, 1911. *Printed.*

No. 2.... Estimates—Supplementary—for the service of the Province for the year ending 31st October, 1911. Presented to the Legislature, 31st January, 1911. *Printed.* Further Suplementary Estimates for year ending 31st October, 1911. Presented to the Legislature, 13th March, 1911. *Printed.* Estimates for the year ending 31st October, 1912. Presented to the Legislature, 20th March, 1911. *Printed.*

CONTENTS OF PART II.

No. 3... Report of the Minister of Lands, Forests and Mines of the Province for the year 1910. Presented to the Legislature, 15th March, 1911. *Printed.*

No. 4... Report of the Bureau of Mines, for the year 1910. Presented to the Legislature, 28th February, 1911. *Printed.*

No. 5... Report of the Inspector of Division Courts, for the year 1910. Presented to the Legislature, 16th February, 1911. *Printed.*

No. 6... Report of the Inspector of Legal Offices, for the year 1910. Presented to the Legislature, 10th March, 1911. *Printed.*

No. 7... Report of the Inspector of Registry Offices, for the year 1910. Presented to the Legislature, 15th March, 1911. *Printed.*

No. 8... Report of the Provincial Municipal Auditor, for the year 1910. Presented to the Legislature, 15th March, 1911. *Printed.*

No. 9... Report of the Commissioners for the Queen Victoria Niagara Falls Park, for the year 1910. Presented to the Legislature, 24th February, 1911. *Printed.*

CONTENTS OF PART III.

No. 10... Report of the Inspector of Insurance and Registrar of Friendly Societies, for the year 1910. Presented to the Legislature, 3rd February, 1911. *Printed.*

No. 11... Financial Statements made by Loan Corporations, Building Societies, Loaning Land Companies and Trust Companies, for the year 1910. Presented to the Legislature, 3rd February, 1911. *Printed.*

CONTENTS OF PART IV.

No. 12... Report of the Minister of Public Works of the Province, for the year 1910. Presented to the Legislature, 16th February, 1911. *Printed.*

No. 13... Report of the Game and Fisheries Department, for the year 1910. Presented to the Legislature, 20th February, 1911. *Printed.*

No. 14... Report on Highway Improvement in the Province, for the year 1910. Presented to the Legislature, 15th March, 1911. *Printed.*

No. 15... Report of the Bureau of Labour, for the year 1910. Presented to the Legislature, 22nd March, 1911. *Printed.*

CONTENTS OF PART V.

No. 16... Report of the Minister of Education, for the year 1910. Presented to the Legislature, 22nd February, 1911. *Printed.*

No. 17... Report of the Board of Governors of the University of Toronto, for the year ending 30th June, 1910. Presented to the Legislature, 25th January, 1911. *Printed.*

CONTENTS OF PART VI.

No. 18... Report of the Secretary and Registrar of the Province, for the year 1910. Presented to the Legislature, 15th March, 1911. *Printed*

No. 19... Report upon the Registration of Births, Marriages and Deaths, for the year 1909. Presented to the Legislature, 10th March, 1911. *Printed.*

No. 20... Report of the Provincial Board of Health, for the year 1910. Presented to the Legislature, 23rd February, 1911. *Printed.*

No. 21... Report on the Hospitals for the Insane, for the year 1910. Presented to the Legislature, 15th March, 1911. *Printed.*

No. 22... Report on the Hospitals for Idiots and Epileptics, for the year 1910. Presented to the Legislature, 15th March, 1911. *Printed.*

No. 23... Report upon the Feeble-Minded, for the year 1910. Presented to the Legislature, 22nd March, 1911. *Printed.*

No. 24... Report upon the Hospitals and Charities, for the year 1910. Presented to the Legislature, 15th March, 1911. *Printed.*

No. 25... Report upon the Common Gaols and Prisons, for the year 1910. Presented to the Legislature, 15th March, 1911. *Printed.*

CONTENTS OF PART VII.

No. 26... Report upon Neglected and Dependent Children, for the year 1910. Presented to the Legislature, 8th March, 1911. *Printed.*

No. 27... Report upon the Operation of the Liquor License Acts, for the year 1910. Presented to the Legislature, 15th March, 1910. *Printed.*

No. 28... Report of the Department of Agriculture, for 1910.*
*This Report was printed in the Sessional Papers of 1910—No. 28.

No. 29... Report of the Agricultural College and Agricultural Farm, for the year 1910. Presented to the Legislature, 16th March, 1911. *Printed.*

No. 30... Report of the Ontario Vetrinary College, for the year 1910. Presented to the Legislature, 20th March, 1911. *Printed.*

No. 31... Report of the Ontario Agricultural and Experimental Union, for the year 1910. Presented to the Legislature, 16th March, 1911. *Printed.*

CONTENTS OF PART VIII.

No. 32... Report of the Fruit Growers' Association of Ontario. for the year 1910. Presented to the Legislature, 16th March, 1911. *Printed.*

No. 33... Report of the Fruit Branch of the Department of Agriculture, for the year 1910. Presented to the Legislature, 16th March, 1911. *Printed.*

No. 34... Report of the Ontario Vegetable Growers' Association, for the year 1910 Presented to the Legislature, 20th March, 1911. *Printed.*

No. 35... Report of the Corn Growers' Association, for the year 1910. Presented to the Legislature, 20th March, 1911. *Printed.*

No. 36... Report of the Entomological Society of Ontario, for the year 1910. Presented to the Legislature, 16th March, 1911. *Printed.*

No. 37... Report of the Ontario Bee-Keepers' Associations, for the year 1910. Presented to the Legislature, 20th March, 1911. *Printed.*

No. 38... Report of the Dairymen's Associations of Ontario, for the year 1910. Presented to the Legislature, 16th March, 1911. *Printed.*

CONTENTS OF PART IX.

No. 39... Report of the Live Stock Associations of Ontario, for the year 1910. Presented to the Legislature, 3rd February, 1911. *Printed.*

No. 40... Report of the Farmers' Institutes of Ontario, for the year 1910. Presented to the Legislature, 26th January, 1911. *Printed.*

No. 41... Report of the Women's Institutes of Ontario, for the year 1910. Presented to the Legislature, 26th January, 1911. *Printed.*

No. 42... Report of the Poultry Institute, for 1910.*
* This Report was not presented in the Session of 1911.

No. 43... Report of the Agricultural Societies of Ontario, and the Convention of the Ontario Association of Fairs and Exhibitions, for the year 1910. Presented to the Legislature, 26th January, 1911. *Printed.*

CONTENTS OF PART X.

No. 44... Report of the Horticultural Societies of Ontario, for the year 1910. Presented to the Legislature, 20th March, 1911. *Printed.*

No. 45... Report of the Bureau of Industries, for the year 1910. Presented to the Legislature, 20th March, 1911. *Printed.*

No. 46... Report of the Inspectors of Factories, for the year 1910. Presented to the Legislature, 20th March, 1911. *Printed.*

No. 47... Report of the Temiskaming and Northern Ontario Railway, for the year ending 31st October, 1910. Presented to the Legislature, 25th January, 1911. *Printed.*

No.. 48... Report of the Hydro-Electric Power Commission, for the year 1910. Presented to the Legislature, 22nd March, 1911. *Printed.*

CONTENTS OF PART XI.

No. 49... Report of the Ontario Railway and Municipal Board, for the year 1910. Presented to the Legislature, 28th February, 1911. *Printed.*

No. 50... Supplementary Return from the Records of Elections subsequent to General Elections in 1908. Presented to the Legislature, 24th January, 1911. *Printed.*

No. 51... Copies of Regulations and Orders in Council respecting Department of Education. Presented to the Legislature, 25th January, 1911. *Not Printed.*

No. 52... Report on the State of the Legislative Library. Presented to the Legislature, 31st January, 1911. *Printed.*

No. 53... Report *re* Game Commission.*
** Not brought down.*

No. 54... Statements of Provincial Auditor under Audit Act. Presented to the Legislature, 25th January, 1911. *Printed.*

No. 55... Copies of Orders in Council under provisions of Surrogate Courts Act. Presented to the Legislature, 3rd February, 1911. *Not Printed.*

No. 56... New Ontario, Situation, Farms, etc. Presented to the Legislature, 3rd February, 1911. *Printed for distribution only.*

No. 57... Dairying in Ontario. Presented to the Legislature, 3rd February, 1911. *Printed for distribution only.*

No. 58... Farming Opportunities in Ontario. Presented to the Legislature, 3rd February, 1911. *Printed for distribution only.*

No. 59... Women's Institutes, Hand-Book. Presented to the Legislature, 9th February, 1911. *Printed for distribution only.*

No. 60... Report on Infant Mortality. Presented to the Legislature, 7th March, 1911. *Printed.*

No. 61... Return to an Order of the House of the 21st day of February, 1911, for a Return shewing: The number of officials, clerks and employees in the various branches of the Provincial Secretary's Department on (*a*) February 1st, 1905; (*b*) January 1st, 1911; with the salaries in each case. The additional work (if any) imposed on each branch and a statement of what has been accomplished thereby. Presented to the Legislature, 15th March, 1911. Mr. *McCart*. *Not Printed.*

No. 62... Return to an Order of the House of the 20th day of February, 1911, for a return shewing: (*a*) For what commodities supplied to the Public Institutions under the control of the Province of Ontario the Government asks for tenders by advertisement in the public press; (*b*) The commodities supplied to each of the Public Institutions under the control of the Province of Ontario for which tenders are not invited by advertisement in the public press; (*c*) and what system of purchase is adopted in each case under (*a*). Presented to the Legislature, 15th March, 1911. Mr. *Kohler*. *Not Printed.*

No. 63... Statement of distribution of Revised and Sessional Statutes, for the year 1910. Presented to the Legislature, 15th March, 1911. *Not Printed.*

No. 64... Report of Bureau of Colonization, for the year 1910. Presented to the Legislature, 16th March, 1911. *Printed.*

No. 65... Report, Provincial Archives, for the year 1910. Presented to the Legislature, 20th March, 1911. *Printed.*

No. 66... Return to an Order of the House of the Tenth day of February, 1911, a Return shewing: (1) The amount expended on the revision of the Statutes from the 14th day of February, A.D. 1910; (2) To whom and on what account were the payments made; (3) The total cost of revision to date and shewing: (4) When will the revision be completed. Presented to the Legislature, 20th March, 1911. Mr. *Proudfoot. Not Printed.*

No. 67... Return to an Order of the House of the Twenty-eighth day of February, 1911, for a Return shewing the uniform system of accounting in respect to the various features of the dealing in electric energy by municipalities having contracts with the Hydro-Electric Power Commission which has been approved by the Government. Presented to the Legislature, 20th March, 1911. Mr. *MacKay* (*Grey.*) *Not Printed.*

No. 68... Return to an Order of the House of the Twenty-eighth day of February, 1911, for a Return shewing: (*a*) The institutions under the control of the Province which are supplied with electric power by the Hydro-Electric Power Commission; (*b*) The amount of power supplied in each case, and the date when such power was first supplied; (*c*) The price charged to each such institution for power; (*d*) The cost of installation in each case; (*e*) The system of supplying power displaced by the supplying by the said Commission; (*f*) The cost of the same amount of power under the displaced system; (*g*) The cost price of the plant rendered useless by the change in each case; and (*h*) What other institutions under the control of the Province are to be supplied with electric power by the said Commission. Presented to the Legislature, 20th March, 1911. Mr. *MacKay* (*Grey.*) *Not Printed.*

No. 69... Return to an Order of the House of the Twenty-eighth day of February, 1911, for a Return shewing: (*a*) The damage done to the machinery or equipment in any and all transformer stations of the municipalities contracting with the Hydro-Electric Power Commission since the said Commission commenced to transmit power; (*b*) The dates upon which such damage was occasioned and the extent in money of the damage to machinery or equipment in each case; (*c*) The names of the contractors supplying or installing the machinery or equipment so damaged; (*d*) The cause of the damage in each case, together with all reports received by the Government or any member thereof or the said Commission as to the cause in each case; (*e*) Upon whom will the loss in each case fall—Upon the said Commission, upon the contractor or upon the interested municipality. Presented to the Legislature, 20th March, 1911. Mr. *MacKay* (*Grey.*) *Not Printed.*

No. 70... Return to an Order of the House of the Twenty-eighth day of February, 1911, for a Return shewing: (*a*) How much power has been called for by the Hydro-Electric Power Commission under its agreement

with the Ontario Power Company, giving date of each notice requiring delivery of power, and the amount called for by each notice; (*b*) The amount of power for which the said Commission is now and has been from time to time liable to pay; (*c*) The amount of Power annually taken from time to time from the Ontario Power Company; (*d*) The amount of power actually transmitted from time to time by the said Commission; (*e*) The dates and duration of all interruptions to the delivery of power by the said Commission to the various contracting municipalities; (*f*) The cause of each such interruption, and all reports thereon received by the said Commission or the Government or any member thereof; (*g*) The amount, if any, of the rebate allowed or to be allowed each contracting municipality in consequence of the interruption of the delivery of power. Presented to the Legislature, 20th March, 1911. Mr. *MacKay* (*Grey.*) *Not Printed.*

No. 71.... Return to an Order of the House of the Twenty-first day of February, 1911, for a Return shewing: (*a*) The municipalities which have entered into contracts with the Hydro-Electric Power Commission for the supply of power; (*b*) The amount of power contracted for by each such municipality; (*c*) The names of the municipalities to which power is now actually being supplied, with the date upon which power was first supplied, the amount of power now supplied, and the amount of power actually used or sold by each such municipality; (*d*) The actual amount for which such municipality being supplied with power has become liable to the Commission, and the date from which such liability runs. Presented to the Legislature, 20th March, 1911. Mr. *MacKay* (*Grey.*) *Not Printed.*

No. 72... Return to an Order of the House of the Eighth day of February, 1911, for a Return, shewing the names of all temporary or extra game wardens appointed during the seasons 1909 and 1910, with the residence and description of each appointee, the amount paid to each for services and expenses, the locality assigned to each, and the number and general nature of reports received from such game wardens. Presented to the Legislature, 20th March, 1911. Mr. *Elliott. Not Printed.*

No. 73... Return to an Order of the House of the Twenty-seventh day of February, 1911, for a Return shewing (1) A copy of the advertisement calling for tenders for the printing, publishing and supplying of "Ontario Readers"; (2) Copies of all tenders received; (3) Copies of correspondence between the Government of Ontario or any official thereof and any tenderer or tenderers; (4) A copy of the contract entered into on behalf of the Government for the printing, publishing and supplying of "Ontario Readers"; (5) A detailed statement of the cost to the Government of supplying to the publishers electro-plates for each Reader; (6) Comparison of the prices of the old textbooks in the Public and High Schools with those of the corresponding text-books in the new series; (7) Amounts saved to purchasers,

estimated on the basis of previous sales and attendance; (8) Methods of safeguarding the quality of the materials entering into the construction of the text-books and their printing and binding; (9) What provinces, if any, have adopted books of Ontario's new series. Presented to the Legislature, 20th March, 1911. Mr. *Musgrove. Printed.*

No. 74... Return to an Order of the House of the Twenty-first day of February, 1911, for a Return shewing (1) From what date is the Hydro-Electric Commission entitled to payment by the City of Toronto for electrical power contracted for by the City from the said Commission, and if (2) The Commission has been paid the amount owing by the City from said date; (3) What amount *per* month has the City of Toronto become liable to pay to the Hydro-Electric Commission for such power, and from what date. If not paid the reason therefor, and is the City liable to pay interest on such arrears. Presented to the Legislature, 21st March, 1911. Mr. *Proudfoot. Not Printed.*

FIFTH ANNUAL REPORT

OF THE

Horticultural Societies

OF ONTARIO

FOR THE YEAR

1910

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1911

Printed by
WILLIAM BRIGGS,
29-37 Richmond Street West,
TORONTO.

To the Honourable JOHN MORISON GIBSON, K.C., LL.D., *etc., etc., etc.,*
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present herewith for your consideration the Report of the Horticultural Societies of Ontario for the year 1910.

Respectfully yours,

JAS. S. DUFF,

Minister of Agriculture.

TORONTO, 1911.

CONTENTS.

	Page.
Officers for 1910-11	6
Ontario Horticultural Association:	
Annual Meeting	7
President's Address: R. B. Whyte	7
Address of Welcome: Mayor Geary	13
Report of Treasurer: H. B. Cowan	13
Report of Superintendent: J. Lockie Wilson	14
Address: Rich. B. Watrous	21
Fruits for City Gardens: Alex. McNeill	24
Some Gardens and Gardeners in the Old Land: Miss M. E. Blacklock	35
Address: Hon. Col. Matheson	43
Address: W. S. B. Armstrong	46
Nature Study in Public Schools: Principal Scott	48
Address: Hon. Dr. Reaume	52
Beautifying our Cities: Rich. B. Watrous	53
Report from District No. 1: F. B. Bowden	63
" " " " 2: W. J. Diamond	63
" " " " 3: Miss Blacklock	66
" " " " 6: G. W. Tebbs	69
" " " " 7: H. J. McKay	70
Roses for Ontario: G. W. MacKendrick	71
Report of Committee on Plant Nomenclature	71
Report of Novelty Committee	83
The Modern Gladiolus: H. H. Groff	86
Address: C. C. James	93
Address: Superintendent Joiner	94
Address: Superintendent Eggleston	95
Address: President Creelman	96
Shrubs and Vines for Ornamental Planting: Prof. Hutt	98
Report of Committee on the St. Catharines Cup Competition	108
The Science and Practice of Plant Propagation: Wm. Hunt	108
Insect and Bird Enemies of Garden	118
The Ontario Horticultural Association in its relation to The American Civic Association: Rev. A. H. Scott	125
Delegates to the Horticultural Convention	131
Receipts and Expenditure of Societies in 1910	134
Membership and Legislative Grants	135
Presidents and Secretaries of Horticultural Societies	136

ANNUAL REPORT

OF

The Horticultural Societies

OF ONTARIO

1910

To the Honourable Jas. S. Duff, Minister of Agriculture.

SIR,—I have the honour to present herewith the Fifth Annual Report of the Horticultural Societies of Ontario for the year 1910, together with the proceedings of the Annual Convention of the Ontario Horticultural Association. Appended hereto will be found tabulated statements of the Legislative grants and membership for the three preceding years, as well as the receipts and expenditure of all the Societies in the Province. The year just closed has been a most successful one in every respect. The increase in the number of Societies and the growth in membership is exceedingly satisfactory, and the work is meeting with the approval of all good citizens, whose motto is "A more beautiful Ontario."

I have the honour to be, Sir,

Faithfully yours,

J. LOCKIE WILSON,

Superintendent.

R. B. WHYTE,
President of the Ontario Horticultural Association.

ONTARIO HORTICULTURAL ASSOCIATION.

OFFICERS FOR 1911.

President ..... R. B. WHYTE, Ottawa.
1st Vice-President ..... REV. A. H. SCOTT, Perth.
2nd Vice-President ..... J. P. JAFFRAY, Galt.
Treasurer ..... H. B. COWAN, Peterborough.
Secretary and Editor ..... J. LOCKIE WILSON, Toronto.

Directors:

F. B. BOWDEN, Vankleek Hill; W. JEFFERS DIAMOND, Belleville; J. H. BENNETT, Barrie; J. O. MCCULLOCH, Hamilton; THOS. COTTLE, Clinton; GEO. W. TEBBS, Hespeler; W. W. GAMMAGE, London.

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Auditors:

COLONEL R. E. KENT, Kingston; A. O. JEFFREY, M.D., London.

Representative to Canadian National Exhibition:

MAJOR H. J. SNELGROVE, Toronto.

On Nomenclature: R. CAMERON, Toronto; JOHN CALLS, Oakville; H. B. COWAN, Peterborough; PROF. H. L. HUTT, Guelph; PROF. W. T. MACOUN, Ottawa.

On Novelties: PROF. W. T. MACOUN, Ottawa; WM. HUNT, Guelph; MISS BLACKLOCK, Toronto; R. CAMERON, Toronto.

Ontario Horticultural Association.

ANNUAL MEETING.

The Fifth Annual Convention of the Ontario Horticultural Association was held in the City Hall, Toronto, on Thursday and Friday, November 17th and 18th, 1910.

PRESIDENT'S ADDRESS.

R. B. Whyte, Ottawa.

In thinking over what would be the best subject to bring before the delegates present I could not do better than to go over some of the work we have done in the past, finding out in what we have succeeded and in what we have failed; the reason for that failure, and the remedy.

Section two of our Statute, I suppose most of us have read more than once, but as that is what might be called the Charter of this Association, I will read it:

"The primary objects of this Association shall be to advance the interests, promote the welfare, increase the usefulness, and supplement the efforts of all Horticultural Societies in the Province. An annual meeting shall be held in Toronto, at such time as the Executive may decide, and to this meeting each Horticultural Society in the Province shall be invited, one month in advance of such meeting, to send delegates for the purpose of discussing matters of general interest, methods of management, special features of Society work, lectures and reports for educational circulation, and for making such recommendations to the Honourable the Minister of Agriculture for Ontario as may be deemed best in the interests of all Societies. Each Society shall be entitled to be represented by two delegates, and any Society having a membership exceeding 100 shall be entitled to additional representation in the proportion of one delegate to each 100, or fraction of 100, members over the first one hundred."

What seems to be the fundamental principle in that section is that this Ontario Horticultural Association should be an Association of delegates from every Society in the Province. We should have representation in this Parliament. It is impossible for us to do that unless all the Societies affiliate. I am sorry to say that in the past only about half have applied: this year, I am glad to say the proportion of affiliated Societies has increased to 38 out of 64, and I am satisfied from the large delegation here, that the great bulk of them have sent delegates.

In the past, we have taken up the work laid down for us fairly well. We have discussed matters of general interest connected with Horticulture in the Province; we have given very full discussion to the methods of management: the successful have been willing to share their experiences, and a great deal of good work has been done in that way—school, civic and literary work: published reports of what they have done; all these subjects are of very great consequence to the successful working of the Ontario Horticultural Association. The more they undertake the better the results will be.

Unfortunately, many Societies think when they have distributed so many published reports that is all that is necessary, but that is a very small part of the

work of the Horticultural Society, and I hope in future they will do more work for the community than most of us have been doing in the past, and that is the line we should all follow—give as little as you possibly can to the individual members, and as much as possible to the public at large; do that and we shall get a very substantial increase in our grant from the Government.

This Association has a very fair claim on the individual Societies. Not only have we discussed all questions of interest to them, but we can claim that they never would have got an increase of $2,000 in the grant, which was procured entirely through the influence of this Central Body. We have been sending deputations to the Government time after time and as a result our grant is now $10,000. The great increase in the number of Societies throughout the Province has made it very difficult to do the work, but now with the increased grant we will be able to carry on the work successfully.

We can fairly take credit for the distribution of the Annual Reports. We have all good reason to be proud of the beautiful reports we have been able to issue during the past three years. These have largely increased interest and enthusiasm in horticultural work; 7,000 were distributed to the members throughout Ontario, and cannot help but have a very powerful effect.

These are things for which we can fairly claim credit and the loyal support of the individual Societies throughout the Province; but, while I think we can congratulate ourselves upon the work we have done, we certainly have failed in living up to our ideal. Notwithstanding the high-water mark of this year, there are still twenty-six Societies that have not affiliated. You can see how little it costs to send a delegate to this Convention, and the great returns to each individual Society, not only the advantage they get from this Convention, the increased grant, but that representatives from the Societies present report the results. It is a great advantage to us to meet and exchange horticultural information and experiences that do not appear in the report at all, and that is what our Societies miss most of all which are not represented here.

I have made a list of the Societies that have affiliated during the past year, and it is very noticeable that the ones who need it most are those that have not affiliated. The weak ones are those who do not come; the energetic ones who wish to extend their work for the public benefit do come, and they are strengthened in their endeavor. The problem is, how to get over this serious difficulty? It ought to be made compulsory that every Society receiving a portion of the Legislative grant should affiliate. It only costs $2.00 and is a very small contribution when you consider that two-thirds of the members of all the Societies in the Province receive reports. The Department should pay the railway fare of one delegate from every Society. It is a very small thing on the whole, and would not cost as much as the expenses of a member of Parliament for the whole session—a mere bagatelle when you consider the benefit which would result therefrom.

These are two points on which I see the necessity for great improvement. Some means should be adopted to enforce affiliation. It is not a very nice word to use when you consider that they should affiliate and send a delegate. This may possibly come up for discussion in the morning session to-morrow:

1st. Affiliation.

2nd. Government should pay the railway fare of one delegate from each Society.

E. Ottaway. We still have ten minutes for discussion; why should that be left over until to-morrow morning? It seems to me that it would probably be overlooked altogether and your suggestions are very good ones. None of the Societies should get a grant unless they affiliate and send a representative.

A Stately Elm on a Perth Lawn. Photo by Rev. A. H. Scott.

A. W. Graham. As one of the new members, there is a good deal that is not being brought to the attention of the Societies. I have been a member of ours at St. Thomas for four years, and I never saw any communication from this Association until this year, when I happened to be President, and when I read of the benefits this Association had obtained for our Societies in securing increased Government support and other advantages, it seemed to me at once that it was selfish on our part not to affiliate, and if it was brought to the attention of the other Societies they would look on it in the same light.

The President. A month or six weeks ago the Secretary wrote to every Society requesting them to join this Association; very few replied. Evidently the Secretaries of some of these Societies failed to do their duty.

Geo. Vickers. Would it not be a good scheme to adopt to publish the names of the different Societies throughout the Province, and as each delegate registers his name to give him a button with a number; that would encourage intercourse between the delegates, and it might result in a great deal of good. For instance, if I wanted to speak to a delegate from Galt I would look up the list and find his number 10, and would look around for a gentleman with button No. 10, and would have no difficulty in finding the man and getting the information wanted.

W. B. Burgoyne. I do not like to disagree with the President, and yet I scarcely think that it is in the interests of this Association that the idea should go forth that we would expect the Government to pay the railway fares of delegates to our convention—it would be setting a very bad precedent, we do not know where it would end. Other Associations think they are of as much importance, and they would have a claim for railway fares to Toronto on the occasion of their annual meetings. When you carry it out to its legitimate end we would not succeed in getting it and we would only make ourselves, perhaps, a little ridiculous.

I certainly agree with the President in desiring the attendance of representatives of every Society in the Province, but I would not compel them to send representatives; it is their loss and they will continue to be what the President has stated—Societies that do not flourish, that are backward in every way. The Societies that flourish and prosper will be those that send representatives, and show their interest in the work by so doing.

The President. I have doubts about it myself, but I cannot see any other way. We differ from a good many organizations as we have no Government grant as an Association. Our sole revenue is the $2.00 we get from each Society. We have some expenses, we have to pay the cost of a good deal of printing and work of that kind, also in bringing in outside speakers, and we have got to have some revenue, and if one-half is cut off by listlessness it becomes a very serious problem, and we should have the Act amended making it compulsory to affiliate. How are we going to do it?

Henry Foreman. Could not that be overcome very largely by electing live men as directors, each to find out what the Societies in his district are doing? I notice by your programme that you have a number of directors, but while I have been connected with a Horticultural Society for the past five years, I have yet to know any director connected with this Provincial Association doing anything in the way of helping his district. If there was some action taken towards electing active directors, they could probably induce each and every Society engaged in the work to become members of this Association.

The President. Unfortunately, we cannot expect our directors to go visiting. They do not get any pay themselves, and as most of them give a good deal of time to Horticultural work, you can not expect them to do that. To show you how little the Societies care, on Page 87 of the Report of last year I said:

Lawn and Flower Beds. Photo by Sir H. Pellatt.

"In conclusion, I hope that during my tenure of office you will not consider me a figurehead. I want to serve you to the best of my ability, and shall consider it an honor for you to make use of me in any way you see fit."

There were just four Societies that took advantage of that offer out of the sixty-four. I have given a good deal of time to the work, was anxious to make the acquaintance of the different Societies, and there were only four to ask for it. It showed that they were not very anxious to be helped in that way.

Major Snelgrove. During the last year I had the honour of being President of this Association a circular was issued to all Societies naming the director who represented the district in which these Societies were, and they were invited to utilize their services. In very few cases was that done, so I can only confirm what the President has said. We have in the first place no funds to pay the expenses of our delegates, and in the second place we have no evidence that our Directors are wanted. I agree with Mr. Burgoyne as to one suggestion which the President has made, but I cannot agree with him to ask the Government to pay the railway fare of delegates to this Convention. It would be establishing a new precedent, that they would not be likely to accept at all. But something could be done in regard to his first suggestion. Coercion is a somewhat hateful word, yet we can bring a little compulsion in the way of qualifying up to a certain standard. As you know, every Society has to fill in a report on a printed form, and I would suggest that that form be so amended that every Society shall report to the Department whether they are affiliated and whether they sent a delegate to this Convention. Upon that report the Government grant is based, and I am sure the Government would pay a honorarium to those Societies who think it worth while to send a delegate to this Convention.

Good fruit would result from these suggestions, and I would move that they be referred to the new Board to make such representation in regard to the qualification of the Societies as may be deemed fit.

The President. The Department of Agriculture allot for this work $10,000 a year. Now, I do not think it is going to hurt the Societies to pay $300 or $400 out of this grant.

F. P. Bowden. Let the Society pay it.

The President. The Society will not do it. Those who need this Convention most are those who get nothing out of it. How are we going to get at them?

F. P. Bowden. Could not the grant be fixed in the same way as that of the Public Libraries? The Public Library Department are now holding meetings; they are requested to send delegates, but if they do not send a representative $5.00 is deducted.

The President. I am glad to see that some Institution enforces attendance.

M. D. McTaggart. We are wasting time at this meeting in this desultory manner. If some one would move that this be referred to a committee at the morning session we could get the suggestion into shape. Now we are all beating round the bush. One man suggests that we have a system of identification, another to make life's wires out of the directors; these are good points, but we cannot very well accomplish anything as we are doing now. I would suggest that the President appoint a committee to put this matter in some form that we could intelligently discuss to-morrow morning.

Motion seconded and carried.

ADDRESS OF WELCOME.

MAYOR GEARY, TORONTO.

We have felt always in connection with the different Horticultural Associations, and particularly in regard to this one, which is of such importance not only to the city, but to the Province at large, that we like to have them come amongst us.

You all know more about the subject that I possibly can, but what I do know leads me to the conviction that there is no work to which men can better direct their attention or technical training than to the object which your Association has in view. If we are in this country to go ahead on legitimate and natural lines it will be along those of your Society and kindred associations, which are of so much help. I am pleased to see that the Convention has been well attended, and I am sure that you are entering upon discussions which will be of importance to all of us. We hope that your deliberations may be of use to you as well as to ourselves.

THE PRESIDENT. I am sure we all heartily reciprocate the good wishes for our success that have been given to us, and we appreciate the fact that we have had such comfortable quarters allotted to us, for which we are very much obliged to the city of Toronto.

REPORT OF THE TREASURER FOR THE YEAR ENDING NOVEMBER 15, 1910.

Receipts.		*Expenditure.*		
Balance from 1908-9	$95 25	Expenses, W. B. Burgoyne, attending Convention of American Civic Association		$40 00
Horticultural Society Fees: Perth, Picton, Collingwood, Goderich, Walkerville, Ottawa, Hamilton, Thornbury, Cobourg, Barrie, Seaforth, Bowmanville, Mitchell, Stratford, Clinton, Springfield, Durham, Vankleek Hill, St. Catharines, Kingston, Waterloo, Port Dover, Smith's Falls, Whitby, Belleville, Guelph, Barrie, Brantford, Perth, Port Hope, Stirling, St. Thomas, Simcoe, Caledonia, Walkerville, Hespeler—36 Societies	72 00	Convention Expenses, 1909: Janitor $2 00; Special Reporter 5 00	$7 00	
Refund from W. B. Burgoyne	20 00	P. W. Ellis & Co.		10 60
Interest to May 31, 1910	1 15	Postage		2 00
		Major H. J. Snelgrove		6 60
		Special Telegrams to Horticultural Societies regarding Annual Government Grant		15 32
		Affiliation Fee with American Civic Association		5 00
		Printing		4 75
		Exchange at Bank		95
		Balance on hand		96 18
Total	$188 40	Total		$188 40

(Signed) H. B. COWAN,
Treasurer,
Peterborough.

Audited and found correct.

(Signed) J. O. MCCULLOCH.
(Signed) J. CAVERS.

MR. J. LOCKIE WILSON. I may state that when Mr. Cowan sent his report to me he had received the fees of 36 Societies, but since that time we have received, through Mr. Green, some four other Societies, making in all forty Societies that have affiliated out of the sixty-four.

The Report was received and adopted.

REPORT OF THE SUPERINTENDENT.

J. Lockie Wilson, Toronto.

I was very much interested in the discussion of the President's address, and just for a moment you will pardon me if I refer to it.

The question of paying the delegates' expenses to a Convention of this kind is one that would need a good deal of consideration, as we are not the only pebble on that great beach of Associations that we have in the Province of Ontario. I suppose that there are a hundred, all doing work presumably in the interests of the people, as ours is; Farmers' Institutes, Fruit Growers' Association, all the different Live Stock Associations, and to-day I believe the Independent Telephone Company, in this same building as ours, all doing work in the interests of the people, but I am afraid that the Treasury Department, large as it is, would not be able to stand the tremendous expense of the delegates who would want to come.

This is a matter, as I say, that is almost too big a question for our Convention. The President has intimated that we are one Association that does not get a direct grant—that is quite true to a certain extent, but yet the men we are representing here get the largest grant, according to membership, of any in the Province. Your fees are $1.00, you have approximately now about 10,000 members; the Government grant is dollar for dollar; you get one hundred per cent for the money paid in, so that I do not think any Society in this Province should be in such bad shape that it could not pay the expenses of its delegates each year.

Increasing interest is being manifested throughout Ontario in the work of our Horticultural Societies. I have received communications from many sections asking for information regarding the organization of new ones, and the gospel of beautiful homes and civic improvement is beginning to occupy the place it should hold in the hearts of thoughtful citizens, who are discovering that an environment of shrubs, trees, plants and flowers means much for the uplift of humanity. They have learned, too, that the place to plant the good seed is in the hearts of the little children. School gardens are increasing in number, and teachers and school boards who began in a limited way with a few small window boxes and flowers are now entering with enthusiasm into the broader and better work of school gardens. Contrast the present day surroundings of some of our public schools with those of less than a quarter of a century ago, and the improvement is indeed gratifying. Many of our districts would be well repaid if trustees would visit the rural school at Jordan Harbour, established through the enterprise and generosity of that public spirited citizen, M. H. Rittenhouse. The former somewhat unattractive surroundings have been by him converted into a veritable Eden on the shores of Ontario's inland sea.

I was informed to-day by Mr. Burgoyne that Vineland, within a short distance from Jordan Harbour, has a school in which the gardens are nearly as fine as those at the Rittenhouse School, all due to the efforts of the teacher who is in charge, together with the hearty co-operation of the trustees; and, while Mr. Rittenhouse has given so large an amount for his old home locality, there are trustees and teachers in that vicinity who are also doing good work.

I visited a number of beautiful gardens and large Horticultural Exhibitions while in Great Britain and the Continent this summer. The exhibit of flowers at the Royal Show at Liverpool was the finest I had ever seen. The roses especially were of marvellous beauty, and in color and perfume they could not be surpassed. One of the spots that impressed me most was the walled garden of Louis XIV. at

Versailles. Some years ago the French Government utilized this garden as a training school for young men desirious of becoming experts in the art of Horticulture. By means of this Institution, France is being filled up with men imbued with the spirit of intensive and scientific gardening.

Rhododendrons Sheltered by Spruce.

School Gardening in Great Britain and the Continent.

A great deal is being said at the present time about the high cost of living, and the depopulation of the rural districts, and various suggestions are being made to remedy these. It will take some time, however, to dam this tide and turn it into its proper channel, but one way in which it can be done is through the boys and girls who receive their earliest instruction in the rural public schools. By the use of school gardens and suitable information supplied, many of these children will grow

up filled with love of Horticulture, and the ranks of our farmers and gardeners will receive numerous additions from those who would, otherwise, drift into cities and become consumers instead of producers.

It may surprise some of those present to know what is being done in Great Britain and the Continent of Europe in the establishment of school gardens. As far back as one hundred years ago proprietors of large estates instituted gardens for the purpose of instructing young workmen, and for training them to become overseers. Three German States, in the early portion of last century, introduced into their rural schools the cultivation of fruits, vegetables and flowers. Others soon followed. Berlin established a central garden comprising ten acres, with a number of smaller ones in the neighborhood of schools. On distribution days the various schools receive from this Central Garden nearly 100,000 plants for biological and botanical study.

Austria and Sweden took up the matter of school gardens in 1869, the former exacting that a garden and a place for agricultural experiments must be established in connection with rural schools wherever possible, while in Sweden every school must have a garden of from 70 to 150 square yards of ground properly laid out and tended. Regular elementary schools must have a course in Horticulture on their curriculum, in which emphasis is laid on the raising of fruit, vegetables and truck farming.

Just think of that away off in distant countries. When we receive immigrants we think we are superior people, and we have a lot to tell them of what we are doing here: and yet in that country, Sweden, wherever possible, school gardens are properly laid out and tended.

The elementary schools in France have recognized school gardens since 1880, and in 1902 these were extended to rural schools.

Russia, generally considered a backward country, requires that every school receiving public funds must maintain a garden for flowers and vegetables and also a plot for forest trees, and, in addition to these, an apiary. Seeds and books are furnished free and inspectors travel around to see that the gardens are well laid out and properly planted, and that suitable courses of study are practised.

What do you think of that for the Czar of Russia's so-called benighted citizenship? Here is something that our boasted Educational System does not include; Ontario is continuously boasting of her fruit and farming, and yet Russia leads in this regard. A rather startling statement is it not?

For nearly twenty years, England has carried on school garden work, but, until recently, chiefly in connection with Supplementary Schools or those maintained by philanthropic citizens. In 1895, the Department of Education added cottage gardening under the supervision of the schoolmaster or a practical gardener. Every county now has its Agricultural Inspector, who supervises and sometimes instructs in the schools, lectures to teachers preparing for examinations and carries out a detailed statement of scoring school gardens and awarding prizes for Horticultural products raised therein. The Royal Horticultural Society of England offers prizes to teachers who pass examinations in elementary agriculture, and, in some counties, the successful ones are entitled to extra salaries. In the six hundred elementary schools in Surrey, there are 8,300 pupils receiving instruction in gardening, and the numbers are rapidly increasing. Liberal grants are made by the County Councils. There are also evening school gardens for boys employed during the day, and prizes are given to both teachers and pupils.

In Switzerland, the primary classes receive instructions on soils and fertilization and in practical field work, this being part of the regular curriculum.

The Massachusetts Horticultural Society was the first to take up the subject of school gardens in the United States, having established a wild flower one in 1891, which is still in existence with 150 native wild plants and flowers. Miss Miller has told us what has been done in Cleveland and other parts of the United States with school gardens. Cleveland has, to-day, more than 50,000 home gardens due to the influence of these, and the efforts of the Home Gardening Association. Further evidence as to the value of school gardens in character building was given by the President of a large corporation in the United States, who, after investigating the success and failure of men who had grown up with him from boyhood, was

Tree Pæony—Queen Elizabeth.

so impressed by the fact that very few of those who had taken up farm or garden work had failed, that in a very rough neighborhood he laid out a number of garden plots, 10 x 100 feet each, for the use of the children of that section, and placed a competent gardener in charge. The idea was quickly taken up by the boys and at the end of the season each plot not only sufficed to provide a family of five with all the fresh vegetables needed, but also gave the boy who had worked it a profit of $5.00 extra. This work wrought a wonderful change in the youth of that neighborhood, through the originator of it recognizing that "boys should be formed not reformed."

I have dwelt somewhat lengthily on the subject of school gardens, as I consider it one of the most important works that can be taken up by our Horticultural Societies.

? H.S.

I am pleased to note the promptness with which secretaries of Horticultural Societies are making their returns this year, which greatly facilitates the work of this Department. If all the secretaries would make their returns without delay, it would be possible for us to notify them early in February of the amount of Legislative grant coming to them.

The increase in membership last year was 803, and in expenditure $3,300, the total expenditure being $24,147. There are now 64 Horticultural Societies organized and doing good work in the localities where their headquarters are established.

54 Societies have sent me in full or partial returns of their membership and expenditure for the past year, which shows that, so far as reported, there is an increase in membership of about 800, and in expenditure of nearly $600.

Arrangements were made by which Miss Louise Klein Miller, Cleveland, addressed a number of meetings under the auspices of some of our Societies. Her addresses were illustrated with limelight views showing the good work being done in Cleveland, Ohio, among the children by means of a well-arranged system of school gardens. Miss Miller's addresses were very much appreciated by those who had the privilege of hearing her, and the citizens of Guelph are endeavoring to secure her services for another visit in the near future.

Milton, one of our youngest Societies, inaugurated a competition for the best kept lawn and garden, the prizes being awarded by a judge sent by the Department. This Society was greatly encouraged by the presentation of beautiful sterling silver cups as prizes in the competition by Mr. F. H. Deacon, Toronto, a Milton "Old Boy."

If all the "Old Boys" could understand how much good they could do by following the lead of this "Milton Old Boy," I should think the cups would be handed over to the different Societies in very large numbers.

A number of our older Societies are also doing excellent work along similar lines. Successful Horticultural Exhibitions have been held by several Societies, and at St. Catharines a valuable silver cup was put up for competition open to all the Societies in the Province. This year the Toronto Society is the successful holder of it.

The Toronto branch has made wonderful progress during the last year. Its membership has increased from 297 to 820, the largest increase in the Province. A feature of their work this year, which might with profit be adopted by other Societies, is the selection of certain blocks of streets in the sections of the City where civic improvement had not made much progress, and the offering of prizes for the best kept lawns, gardens, and backyards in such districts.

In New Ontario, the Haileybury and Sault Ste. Marie Societies are making marked progress in every line of civic improvement. The Ontario Government Railway at a number of its stations, particularly Englehart, has laid out the grounds in an attractive manner and is doing a fine educational work in this regard for the incoming settlers. The C. P. R. has now 1,500 gardens connected with its station grounds and large prizes are awarded for the best kept garden looked after by their officials. This fall the Company has sent out half a million bulbs which will, doubtless, gladden the hearts of weary travellers in the spring of 1911.

Ten Societies have asked for information regarding incorporation; 12 Societies have already sent in their affiliation fee to the Treasurer.

10,000 copies of the Report of the Horticultural Societies for 1909 were printed, of which 7,000 were mailed to members of the various Societies.

At the close I may state that the Government should get enough of these Reports printed so that each member of the Society could receive a copy. It

would be a great thing to know that every member will be able to get the Report and the valuable information contained therein, and it may be up to you, gentlemen, or to your incoming Board of Directors, to get the Government to print enough of these Reports to send one to every member in the Province.

At the close of the Directors Meeting, held in Toronto on February 3rd, 1910, they waited upon the Hon. J. S. Duff, Minister of Agriculture, and urged upon him the necessity of increasing the Legislative Grant to the Horticultural Societies. The Minister received the delegation in his usual courteous manner and stated that the Department appreciated the splendid work that was being accomplished by the Association, and that their request for an increased grant would be placed before his colleagues, which was done, and I am pleased to inform you that the grant was increased this year from $8,000 to $10,000. You will, doubtless, have noticed the considerable increase in the grants to our progressive Societies in 1910.

I have received no information as to whether progress has been made by the Canadian Florists' Association with reference to the lowering of the tariff on roots of peonies, dahlias, palms and certain other plants. Your Directors at their last meeting appointed the President to represent our Association when the matter is being brought before the Federal Government.

A number of our towns and cities, it is pleasing to note, are increasing the extent of their park areas. One costly item in the park system is the keeping down of grass and weeds. I would call the attention of Park Commissioners to the system practised in Great Britain in this connection. Even in Hyde Park, in the centre of London, the greatest city in the world, flocks of sheep are pastured, and by this method the expensive work of cutting grass and weeds is eliminated. Not only is the fertility of the soil maintained, but a large revenue is derived therefrom as pasturage rental.

I have thus summarized briefly the work of the year, and I have to thank the officers and members for the kindness and courtesy extended to me at all times. The Board has worked in continuous harmony with the Department, and we hope the incoming year will be one of great progress to all the Societies.

DISCUSSION.

J. P. Jaffray. Is there a man in this audience who believes that we have any reason to despair after reading the report of the Superintendent? I am not one of those who regard the outlook as blue, I believe that this work we are engaged in is at the high-water mark; that we have a better future than we have ever had; that the men here are determined to go home and do as much as they can to advance horticulture.

Now, so far as the payment of delegates is concerned: It appears to me that any Society which has any self-respect will be responsible for the expenses of its own delegate. Galt has four representatives here, and, if we can do that, other societies can send at least two. Now that we have gone into civic improvement work, we are influencing cities, towns and villages, there is an immense future for the societies, and it is one of the noblest works in which we can engage.

Nearly all who have received visitors from abroad are eager to have them say that this is a beautiful country, and you point out the beauty spots, but if you have any slums you keep them away from them. Now, as a matter of fact, none of us are perfect. We make up our minds that there is a large amount of work to do, and if we just sit down nothing will be accomplished. The very city we are in to-day has in the past been a bad influence upon the Province of Ontario;

Toronto is getting its eyes open, and as it improves the good influence will extend. Every well-kept village influences the district around it, and this is the work our Society has in hand.

We are improving and we are keen on our work. We want the Press and everybody to understand that the Horticultural Association is one of the best in the Province: we intend to keep it so, and with this percentage of delegates I do not see any reason why we should despair. I do not know of any Association that can show a better body of men, or ladies, and I only wish that every Society, including my own, could get the ladies working on the civic improvement work.

In the City of Guelph the Daughters of the Empire have taken up the work of the Horticultural Society. They have created an interest among the children and offered a prize for the best Public School composition on "How to Make

Maud Dean in Bloom. Photo by Mr. Duggan, Brampton.

Guelph Beautiful." They did that last year. The year before they spent about $800.00, raised by small subscriptions, to put up a pergola in one of the parks, a piece of ornamentation that is one of the most unique in this part of Ontario. When you get the women interested you will accomplish a great deal. If each one of you will go back to your town and get your wives and daughters working, your town will gain very largely in its campaign work. We must have publicity and we will then make this a beautiful Ontario. We have the finest part of the American Continent, and we ought to go away from this Convention determined to do our share.

Prof. Hutt. I am glad the Superintendent has emphasized so strongly in his Report the importance of school gardens. The time is not far distant when they will be more generally regarded in this country as a necessary part of the equipment in connection with every well-organized school. A great deal of good might

be done, however, even without school gardens, if more attention were given to the general improvement of grounds. I believe in no other way could we as quickly effect an improvement in the appearance and surroundings of homes generally than by beginning such improvements upon school grounds, and I certainly agree that around every improved and beautified educational institution should be established a systematic plan of school gardens.

This matter of improvement of school grounds is one that we at the College have been giving considerable attention to of late, as a matter of College extension work. A couple of years ago I prepared for the Provincial Department of Education a bulletin on "The Improvement of School Grounds," which was distributed through the inspectors to all of the school boards throughout the Province. This has helped to create interest in the work in many parts of the country, and we have been privileged to visit schools wherever they are desirous of assistance in the matter of this kind of improvement. Already we have in hand the preparation of plans for the laying out of about fifty different schools in various parts of the Province where the importance of this work has been recognised. I take the opportunity of mentioning this fact, as I would like all the delegates here to know that we are at their service to assist in such work anywhere in the Province where they may require our assistance.

We have also made arrangements through our Experimental Union to distribute seeds for children's plots to schools throughout the Province where they wish to undertake school garden work. We shall be glad to correspond at any time with all who are interested in this line of work.

W. B. BURGOYNE. I quite agree with Mr. Jaffray in his view that we should be optimistic. Those of us who remember the meeting of five years ago, when this Association was organized, in some little obscure room near Massey Hall, when probably fifteen or eighteen organized this Association, and look around this room to-day and see the large attendance that we have at any annual meeting, we have every reason to be proud to see what has been accomplished, and look forward with great hope towards the future. We have not merely seen this Association grow, but the branches are spreading in every direction, and we have seen the work increase from year to year. One of the best things which this Association has accomplished is the issuing of the Report of the proceedings. That alone means a great deal towards the accomplishment of the objects for which we are organized. It disseminates a great deal of very valuable literature. The best of all that is read here by those who are experts in horticultural work is preserved and distributed throughout the Province, and is the means of doing a great deal of good. We ought to have more of them. The edition of the Report should be large enough so that a copy should be in the hands of every member of the Horticultural Societies in the Province.

Moved by W. B. BURGOYNE, seconded by REV. A. H. SCOTT: "That, recognizing the very valuable nature of the Annual Report of the Horticultural Societies of Ontario, the Honorable Minister of Agriculture be memorialized to increase the number of copies printed, so that every member of the Horticultural Societies of this Province may be supplied with one." Carried.

ADDRESS.

RICHARD B. WATROUS, SECRETARY, AMERICAN CIVIC ASSOCIATION, WASHINGTON, D.C.

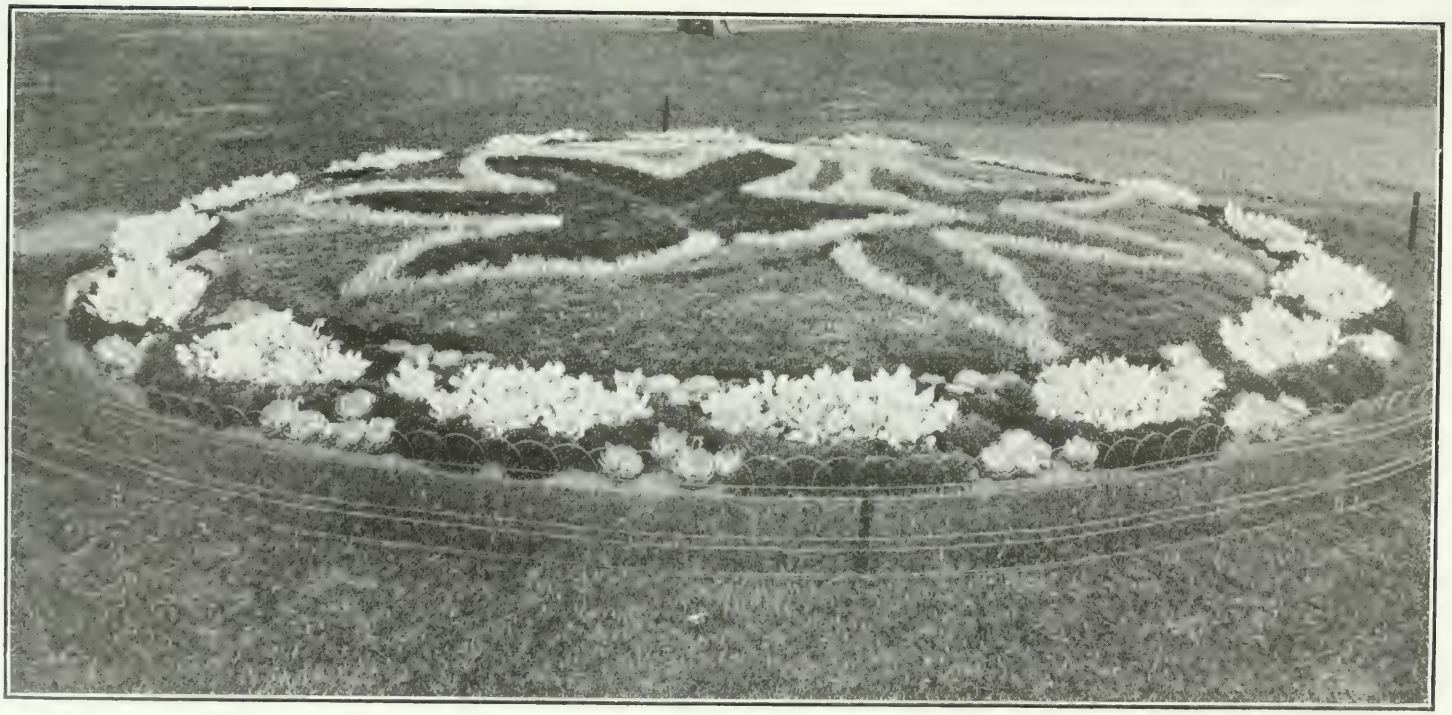
On two occasions, at least, it has been my pleasure, at Conventions of the American Civic Association in the United States, to hear the very cordial greet-

ings that were presented to us by members of the Ontario Horticultural Association, some of our friends who are here this afternoon. It has always been a delight to us to have those representatives of your splendid organization in attendance at our Convention, and fraternizing with us in the discussion of subjects which relate so much to the happiness and good health of the people of all this America, and I am pleased, as an officer of the American Civic Association, to come here to-day to extend to you greetings from my country, and in particular from the American Civic Association, which is composed of thousands of individual men and women, and hundreds of auxiliary societies, composed of many thousands of members, to wish you well in all that you are undertaking for the betterment of humanity in this part of Canada. We congratulate you upon the development of new organizations; upon the fact that while you are assembling to discuss things that relate to your own business, and your prosperity, you have never forgotten that you are at all times your brother's keeper, that you have a duty to perform to those who are associated with you, that to the communities you represent you have a special duty to make those communities good to live in. That is the work of the American Civic Association, and I am glad, and have always been glad, that our title is such that it takes in all of America, from Mexico on the south, to Canada on the north, and we are proud to number among our members many from Canada, and Toronto in particular. There is a demand for concerted and continuous effort for the making of beautiful cities, large and small. Conditions exist everywhere, in the best and most beautiful cities, which are a discredit to civilization, which are contributing to poor health and poor morals. We believe that both of these can be improved, and our Association, which has headquarters at Washington, the Capital of the States, is engaged, day in and day out, in an endeavour to assist in the illimitable work that may be done for the improvement and beautifying of the home and neighborhood surrounding it, and also to assist in larger undertakings, which are now known as comprehensive city plans.

We know what is going on in Canada, what is being done in Toronto, Montreal, Ottawa, and other smaller cities. We wish you Godspeed in all that you are undertaking to do.

Permit me to extend to you one and all greetings from a sister organization away off in the Prairies of Illinois, for on Tuesday evening it was my pleasure to attend a meeting of the Central Horticultural Society of Illinois, and there, as here, the men and women of that organization realize the duty devolving upon them and they had set aside a part of their programme to discuss the Civic Improvement work. I told them I was taking the train to Buffalo, and then on to Toronto, and it is my pleasure to extend greetings, to add also a special greeting from the Central Horticultural Society of the State of Illinois.

Rev. A. H. Scott: I am sure the officers and ladies and gentlemen belonging to this Association, will, with very great pleasure, reciprocate the kindly words and the cordial wishes of our good friend from that large country that we know as the United States of America. Sometimes our representatives from the United States, because of their age and size of their country, have forgotten, if they knew it, to come with such consideration as our good brother who has spoken this afternoon. This gentleman comes to us in an appreciative way; he remembers that the larger half of the North American Continent under the Union Jack, is young, promising, and prosperous, and looking forward, alongside of the older sister, for the making of the morals and the homes of this Northern portion of the Western Hemisphere; and I believe that, next to our King, and our British connections, the condition of things to-day is largely dependent for peace and for prosperity upon the



A Pretty Bed in Queen's Park, Toronto.

manner in which the people to the south of us, and we to the north of them, will get along hand in hand, looking to God and to the best within ourselves, for the prominence and prosperity of our lands.

We reciprocate the kindly wishes of the representative of the United States, representing first of all the American Civic Association, and secondly the Horticultural Society of a principal State in the Union, and I am sure that when he goes back to his own land he can say that he has friends up here that will be glad to see him, and his successors, back again.

Rich. B. Watrous: I appreciate the response greatly. There is a bond of sympathy. We are just as proud of Canada as you could wish us to be; we regard you as our brothers.

I did not wish to trespass too much upon your time, and omitted one announcement: Our Association, which is your Society also, has its Annual Convention at Washington, December 14, 15, and 16, and it is our great desire that your organization should be represented, as it has been in the past. I wish that you would send several more of your splendid delegates, and that the small societies might think it worth while to send representatives also, because it will be a school of instruction. There will be distinguished speakers, who will tell of home surroundings and the physical betterment of cities, and National and State Parks; for, while we in the United States have National Parks, we, like you, want more of them.

FRUITS FOR CITY GARDENS.

Alex. McNeill, Ottawa.

The chief pleasures of a city garden are æsthetic. Admitting this freely, I maintain that even on the æsthetic side no garden is complete that does not round off its beauty with fruits. Foliage and flowers lend the elements of freshness, exuberance and youth, but it is fruit that conveys the exquisite sense of finish, achievement and rest. With fruits even more than flowers, we feel that we are dealing with Nature's most carefully guarded secrets, and realize all the pleasure of working in co-partnership with Nature in the primal elements—earth, water, air and sunshine.

Even in food values the æsthetic is a very large element. The man who eats a Stark apple may get the purely animal satisfaction of having his appetite satisfied, but flavor and colour are absent. Let him eat a well-grown Spy or Fameuse, and he feasts his soul as well as his body. I despair of being able to impress these facts by word of mouth; I have much more faith in the concrete example.

In the freshness of a June morning, I visited the garden of our fellow member, Mr. H. H. Groff. I found him in the midst of thousands of Gladioli blooms, all of them of exquisite beauty and most of them his own creation. It required no argument to demonstrate his intense pleasure in his garden. Of course, in his case, what was originally only a small city garden has become a world-famous plant-breeding establishment; but it was for many years only a city garden of a gentleman carrying the load of a large commercial concern, but who, nevertheless, found time to delve into Nature's secrets so that he could command, apparently at will, new and beautiful creations in the flower world. He does not stop at this. Noticing some rows of corn, I asked him if he grew the Golden Bantam. "Not for my own use," he said. I asked him why, and he replied that it was not good

enough. He then showed me creations of his own that far surpassed even that very delicious variety of sweet corn.

I need not go so far as Simcoe to illustrate, by practical examples, men who will live longer by many years because they have been enthusiastic city gardeners in something more than flowers and who have contributed not a little to the world's stock of happiness and comfort by putting forth their efforts in a city garden.

Our President, who occupies the chair to-day, has a city garden in the most fashionable part of Ottawa. It is a Mecca for all lovers of flowers, but he does not neglect the fruits; and although he, too, is a man earnestly engaged in a large commercial enterprise, he yet has been able to add not a little to the horticultural wealth of Canada in fruits. In this beautiful flower garden originated the Herbert raspberry, which is now rapidly supplanting all other varieties where quality and hardiness must be combined. Here, too, you will find splendid specimens of

The Luscious Fruits of Autumn.

plums, apples, grapes, all of them planted so as to lend an artistic element to every feature of the ground. Nor are his contributions by any means exhausted in this. I am giving away no secrets when I say that I believe he has the best collection of gooseberries in Canada, not excepting any of the commercial growers: and, what is infinitely more to the point many of these varieties of gooseberries are his own creation, and in all probability will be the means of revolutionizing gooseberry growing in Canada and placing it somewhat on a par with gooseberry growing in the Old Country. I need not say anything more to emphasize the possibility of fruits in a city garden, their usefulness and their beauty.

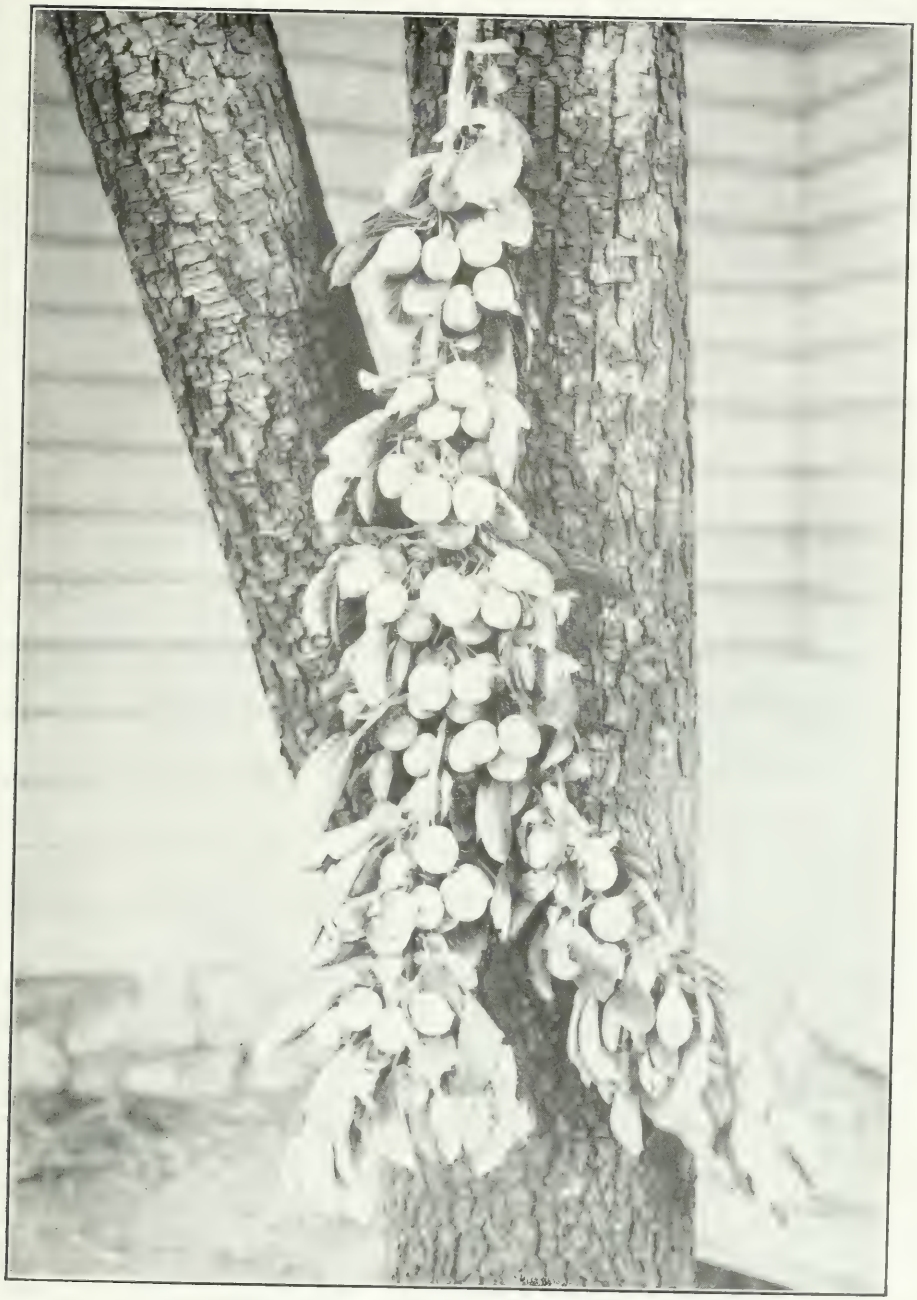
In discussing fruits for the city garden, I would have you disabuse your mind of the thought of direct profit: not but what there is profit in the city garden, but that is not its primary object. The motive of the city gardener is to grow things that are beautiful, products that will tickle the palate as well as please the eye; and that cannot usually be bought with money. It is quality rather than quantity that we are working for.

I would also recognize the limitation of the city garden. In size, there are all gradations, from the 10 x 12 backyard to the home ground of an acre lot. But speaking generally, the city lot is limited in area. It is limited, therefore, not only in soil but in sunshine and air. I cannot do better, then, than to confine myself for the most part to those fundamentals that tend to overcome these limitations. These principles, of course, are not different from those that are applied in general agriculture; but everything is intensified.

A word as to the soil. Upon the proper treatment of the soil will depend to a large extent our success or failure. It is the root space where the plant must obtain those essential elements of growth for which there is a universal struggle in Nature. The city gardener endeavors to lessen the competition between his plants to the lowest possible extent by supplying all the elements of growth to the very fullest extent. It is very true that in the last analysis there is no real substitute for extent of garden and for surface soil: nevertheless, a great deal can be done to ameliorate the conditions. First, I would insist that the city lot be thoroughly drained to a depth of at least four feet. At first thought it would seem that in a city pierced in every direction with sewer pipes there would be no possibility of undrained soil. Such, however, is not the case. Most city lots will be the better for tile drains laid four feet deep. I make no apology for insisting somewhat strongly upon drainage, because in this country so few people appreciate the value of it. If a test is required I would say that if you make a hole in the ground in your garden four feet deep and find that water stands at the bottom of it for more than twelve hours at any time in the year, then your city lot needs tile draining before it is as efficient as it may be.

Another point is trenching. The ordinary farmer thinks he does well if he breaks the surface soil with the plow to a depth of 8 or 10 inches. Only the most advanced of our farmers use the sub-soil plow; and even where it is used it goes only a few inches deeper. With the farmer, usually the surface soil is worth only a few dollars per acre, and it will not pay him to bother with comparatively sterile sub-soil when he can get surface soil so cheap. In the city garden conditions are reversed. The surface soil is worth many hundreds of dollars per acre, and in most cases it cannot be bought at any price. It is, therefore, our object to increase as far as we can the efficiency of the soil. This may be done by trenching and fertilizing. Most plants feed quite readily to the depth of four feet. If the garden is worked for only one foot, then we are missing at least one-third of the root space that we might utilize. Work two feet and we have conquered more of it. Put it down 3 feet at least, and better four, if you would get the best results. Of course, in doing this work it is not to be expected that you would put your fertilizers in the bottom of the trenching. For the last foot at least, all that is required is to loosen the soil so that the roots may permeate it easily. There will be sufficient plant food find its way to this lower area if the fertilizers are thoroughly incorporated with the first three feet of the soil. This, of course, must be done with discretion. Indeed, from what I know of the practice of many city gardeners, I think that much more might be said with profit upon this subject of trenching. I have before me this afternoon a fair sample of the most successful Canadian horticulturists, and it would be interesting if I dared to ask how many practised systematically on their limited areas of land this system of deep trenching.

Before leaving the treatment of the soil, I would also put in a word with reference to the importance of incorporating a large quantity of plant food and humus in the soil. Growers of strawberries on a commercial scale quite frequently put 50 double horse loads of barnyard manure upon an acre of soil and this seems a large



Thinning would have saved this Limb.

quantity; and so it is, and only to be justified where the most intense culture follows; but in the city garden this would scarcely be half enough. Use could be made of what would amount to 200 loads to the acre. In fact, if the barnyard manure is well decayed it is very difficult to get too much of it.

I am not by any means exhausting this feature of city fruit-growing when I am dwelling upon the preparation of the soil, though I must admit that it is a feature common to flower as well as fruit growing.

Having considered the conditions for city fruit growing as far as the soil is concerned, let us now turn our attention to the elements—sunlight, air, and water. Water usually can be obtained in unlimited quantities. If the soil is well underdrained, it is astonishing what large quantities of water can be used successfully. The richer and deeper the soil and the more the plants are crowded upon it, the more water, of course, will be needed.

The two elements, sunshine and air, are of the utmost importance. No matter how the soil is loaded with soluble plant food, it is absolutely useless for plant growth in the absence of sunshine. Indeed, the amount of growth can be indicated very fairly by the amount of sunshine which we can command. We are not so limited with reference to air. When we have accommodated ourselves to secure the largest measure of sunshine, usually we have also the best arrangements to secure air circulation. Nevertheless, even in this matter of sunshine, there are differences in plants. Some will succeed only in the direct rays of the sun; and none, except parasites, will succeed without some measure of sunshine. It is, therefore, the care of the horticulturist to make use of every possible means by which he can utilize sunlight. Every sunbeam has for him a specific value, and he will adapt himself both in situation and in method to the conditions that will secure him the greatest amount of sunshine and air. Hence, the great importance that I would attach to the training of fruit trees and bushes in the city garden as well as to the arrangement of them about the fences, walls, and trellises of the grounds.

An apple tree, for instance, grown as a standard and allowed to grow at will, would occupy the whole space of many a city lot to the exclusion of everything else. But it would be quite possible to take the same tree, prune it and train it on a wall or espalier, or even in a well directed pyramidal form, and secure quite as much fruit while occupying only a small portion of the space that it otherwise would. And what is true of the apple tree is true of all other fruits that we may grow in our garden. This will indicate the possibilities of method in pruning and directing growth of fruit trees. By the proper distribution of the foliage and by making use of walls, fences, trellises and stakes, we may very greatly increase the limited area of our city lot and make more use of the elements—sunlight and air—that come to us. But more of this again.

I should like to say a word of what should be grown in the way of fruit. Personally, I am in favor of growing everything that is suitable to the climate—apples, pears, peaches, cherries, grapes, currants, berries of all sorts, and even vegetables, though my title does not cover that section. But, of course, if we undertake to grow all these fruits in a city garden, undoubtedly we will be obliged to make a very close selection in varieties and apply very definitely the principles we started out with, that it is quality rather than quantity we are aiming at. However, this is a question which is often a matter of personal taste though it will also depend somewhat upon one's surroundings. Nevertheless, I wish it distinctly understood that there is no limit to the kinds of fruit that may be grown in a city garden.

The next question is the methods of growing fruits in a city garden as compared with the ordinary commercial plantations. Speaking generally, I would say, to grow fruit in a city garden with the greatest possible success implies more skill than to grow the same fruits in a commercial way. I do not say this for the purpose of discouraging anyone who may be new at the business, but simply to warn would-be city horticulturists, that they must not suppose, because the garden is restricted in size and the quantity of fruit is likely to be small, that therefore

Quince.

only a proportionately small amount of skill is necessary. It is just the reverse. Nevertheless, even the merest amateur may make a trial at growing fruit in the city garden with the assurance that he will at least have some measure of success. In most cases, I would say that the secret of success is in growing trees and shrubs upon the dwarf plan. I recommend that in all city gardens some trees, at least, be worked upon Paradise stock, and all the rest I think would be better planted on Doucin stock, though it is quite possible with proper management to train a standard tree to almost any shape and form and, within certain limits, any size. Pears, too, grow better for garden purposes on dwarfs; cherries do not admit of

so much modification; plums can be trained in almost any form; and, indeed, so can peaches. Peaches budded on plum stock give a very hardy tree smaller than when grown on peach roots and quite worth the trouble of growing them in this way.

With reference to the training of apples, pears, plums and peaches particularly, I would strongly recommend the espalier form. Identical with this in method is growing them on walls and fences. Of course, it adds a great deal to the appearance of the grounds to have a certain number of dwarf trees either in the pyramid or vase form. Just how to manage the training of these trees would form the subject of an interesting paper, indeed, more than one paper, and I could not undertake to treat it here in detail. I am merely mentioning this method to indicate one way of saving room. An additional virtue in this method of pruning is that you have all your fruit near at hand for careful and continuous manipulation so that it may be protected as these exquisite and delicate specimens deserve. In this connection, I might say, that certain varieties lend themselves to this treatment much more readily than others, and there is a very wide field open for anyone who would investigate the subject. Yet, again, I do not wish to discourage the dweller in the city and would recommend him to try something at once and learn by the doing.

Those who would get the most satisfaction out of the cultivation of fruit in the city lot, must acquire the art of pruning, grafting, budding and, generally, propagating trees and shrubs. Half the pleasure is gone if you are obliged to call in a professional for each one of these operations, and, in any case, there is no necessity for it. Pruning is indeed a highly technical operation, and the thorough pruner must be informed in vegetable physiology, and though he may not call himself a botanist, he must be informed in many features of plant life and particularly in the habits of growth and the mode of development of fruit, branches, leaves, wood buds, and fruit buds.

Grafting is an easier operation and should be learned by an intelligent man with a few minutes explanation and half an hour's practice.

Budding is equally simple in principle, but perhaps, a little more difficult in practice. Nearly all fruit trees and shrubs, and indeed, ornamental shrubs as well, are easily propagated, and there seems no reason why every horticulturist worthy of the name should not be able to multiply his own stock. I recommend this not upon the score of economy. So far as the economy of the case is concerned, I should strongly recommend that wherever stock is of the ordinary kind and can be conveniently procured from a nurseryman, by all means purchase it. But there comes to every city gardener worthy of the name dozens of occasions upon which it would be extremely convenient and very desirable to propagate a few plants. Ordinarily a professional cannot be procured to do the work, even if it were not an added pleasure for the amateur to do it himself.

One of the uses which may be made of grafting and budding is to multiply the varieties, but decrease the quantity of each variety. For instance, we will assume that we have room for a single standard apple tree only. This would probably give you more fruit of a single variety than would be needed. It would then be convenient to graft part of the tree with other varieties. Indeed, I have seen a tree with a dozen varieties upon it. It would thus be possible to secure choice fruit from a single tree throughout the whole season.

I would strongly recommend to this Association the close study and the practice of tree training as one may see it in European gardens. In America it is extremely rare to find a dwarf tree, an espalier, or a well trained tree. In European gardens

it is the exception to see anything else. In parts of France, and for that matter in England, too, all dessert fruit and a large part of cooking fruit are grown upon dwarf, espalier, or wall-trained trees; ordinary standard trees are reserved only for the cheaper grades of fruit, and more particularly for cider fruit. This implies a much greater proficiency in the art of training than many of our members possess at the present time, and I make the suggestion that if this Association is interested in the matter of developing gardens, and especially city fruit gardens, it might not be out of place to offer some encouragement by way of models and prizes that would bring to the front gardens trained after European ways. It may be said that the people of the Old Country are forced into it by their limited areas. That may be, but the fact remains that the price of land is quite as high in our American cities as it is in many, indeed in most, of the European cities.

This subject of pruning dwarf fruit trees, training fruit trees to espaliers or to walls, or keeping them within check in pyramidal or basin form, opens a large field of horticultural effort not yet developed with us. I know of no espalier or wall fruit that deserves the name in Canada, and believe there is very little in the United States. But the time has come when we must adopt these methods. They are not fads and they are not relics of an effete system of horticulture; rather are they products of the highest art in horticulture and the result of profound research in vegetable physiology. As fruit gardeners we are yet in our A. B. C.'s and many of us would be greatly benefited if we could do as our President did last season, visit the principal gardens of the Old Country.

I would like to say a word or two with reference to varieties. Following up the general principles of quality rather than quantity; it is expected that each individual grower will take what appeals more particularly to himself. No two people will agree exactly with reference to quality in fruits. For instance, I have here a McIntosh Red apple and a Fameuse. A canvass of the audience would develop, I think, that we are about equally divided as to which is best in quality. It is simply a matter of personal preference. There is, however, a general consensus of opinion with reference to the grosser qualities. For instance, no one would include the Ben Davis or the Stark in dessert apples. I do not think in this audience there would be any difference of opinion with reference to the quality of the Ben Davis and the McIntosh Red. Speaking in this broad sense, then, it is to be expected that the Ben Davis type of fruit will not be grown in the city garden.

I would not have you infer from this that I think the Ben Davis has no place in the commercial orchard; far from it. Under present conditions, and indeed conditions that are likely to last for some time in certain sections of the country, few apples are better adapted than the Ben Davis. This, however, is a parenthesis.

Before opening this subject for discussion, let me say that I strongly recommend co-operation among city gardeners in the matter of exchanging varieties and specimens. We have much to learn from the English gardeners in the art of training fruit trees. But there is one characteristic of the English gardeners that is to be severely deprecated, that is, their secretiveness, their attempt to keep not only all their knowledge, but all their good things for themselves. It appears to be each gardener's ambition to make as much of a secret as he possibly can of all the various operations. He takes every precaution that there shall be no opportunity for a fellow gardener to secure a specimen of his prized product. It is a common practice, for instance, for some gardeners having what they consider to be a specially fine variety of rose to debud every stem so as to render it impossible for anyone to secure a bloom to propagate from it. The story is told of a

certain English politician, a reputed lover of orchids, that he possessed a variety of orchid which he believed to be the only specimen in existence. Later, however, he found that a professional gardener had a similar one. For the large sum of some hundreds of pounds he purchased the specimen from this gardener, and as the rare plant was handed to him, he threw it upon the floor and crushed it with his foot, so that he still might say that he had the only specimen. Nothing could be more contemptible, nothing shows more strongly the lack of a true spirit of manliness. Let us not imitate this reprehensible spirit, but give freely to our fellow gardeners, and multiply the joys of choice fruits to the extent of our ability.

Cement Curbs used to good advantage. Photo from Sir H. Pellatt.

DISCUSSION.

Prof. Blair, Macdonald College, Que: Mr. McNeill has so well covered the ground with reference to Fruits in City Gardens that I cannot add much to what he has said.

The two principal factors to consider are soil conditions and sunlight. If the soil is not good, special attention should be given to its preparation. Very often the soil around our dwellings is excavation material which is very poor, containing very little if any vegetable matter. Such soils should receive a heavy application of manure in the fall, which should be spaded in to a good depth, and the surface left more or less rough throughout the winter. As a general thing these soils are of a poor physical condition and, if water does not readily drain from them, they should be drained as Mr. McNeill has suggested, but, in addition to this, the application of a good lot of stable manure will make the heavy soil more porous and the lighter soils more compact, giving proper physical properties to it, without which no amount of plant food will give as satisfactory results. This will, of course,

enrich the ground as well, but the most important thing at the start is to have the soil well worked to a depth of eight to twelve inches and humus or decaying vegetable matter well incorporated with it, for after such plants as the bush and cane small fruits and large fruits are planted there is no opportunity for correcting any defects in this particular. Plant food can be added by frequent applications on the surface of the ground either of chemical manures or composted stable manure lightly worked into the surface soil, but owing to the roots of the plants running all through the soil these cannot be given other than surface cultivation to a depth of three to four inches.

Sunlight, the second important factor, is one of the greatest drawbacks to success in many city gardens. The garden may be so surrounded by large trees or buildings that it is difficult to do much owing to shade. Sometimes a tree can be removed to advantage. It is advisable to think well before moving a tree, but often a tree my be taken out, giving space for a more useful smaller one, and at the same time allow direct sunlight to enter the garden. The more sunlight the better the fruit. In many cases we might just as well have a McIntosh Red apple tree growing in place of some of our common shade trees.

It is necessary to do some work in the garden if we are to be successful. The weeds must be kept down and the ground kept loose so that the air can penetrate the soil and the ground not become too dry from evaporation, which takes place much more rapidly from compact than loose soils. As Mr. McNeill says, there is a great deal of pleasure in watching the plants growing and producing nice fruit. There is much more pleasure in growing good fruit than only medium. To keep the soil loose around the plant will do more toward good fruit than any other operation in tillage. For this the hand wheel hoe, or what some call the push hoe, is the best tool. With this you can go over a fairly large garden quickly and always have it looking nice and free from weeds and the soil light on the surface. The work is easily done with this machine, if used often, and the ground not allowed to become hard and the weeds to grow large before being hoed.

Attention should be given to the furnishing, principally of early apples in the city garden. The Yellow Transparent variety should be planted. It is an upright grower and the fruit can be used quite green for cooking purposes. As a general thing, I do not think, it wise to plant any winter sorts. The four trees I would plant would be Yellow Transparent, Duchess, Milwaukee and McIntosh Red. To grow these varieties as dwarfs as Mr. McNeill has suggested, is advisable especially where the area is limited. The standards may be planted 25 feet apart and the dwarfs 10 feet apart. However, if you have sufficient space you will get more satisfaction out of the standard trees, but if you have not space for these, by all means run in some of the dwarf. One or two plums, pears and peaches should also be grown. The pears may be grown as dwarfs to advantage.

Strawberries should always be grown, and probably no one variety will be found more satisfactory than Senator Dunlop. Plant in rows 2½ to 3 feet apart and set the plants 1 foot apart in the row. Set a new plantation every spring; in this way you will always have a clean patch giving nice large berries. If the ground is dry an occasional watering may be given, but the principal thing is to keep the ground well stirred by frequent hoeings. Place in a sunny situation. The ground should be made fairly rich. The runner plants should not be allowed to form closer than 6 x 6 inches apart, giving each plant a good chance to develop. Mulch lightly with straw in the middle of November, and rake this off the plants in the spring, placing it in the space between the rows. This keeps the berries clean and holds moisture for the development of large fruit.

Gooseberries will stand shade and may be put in the shady part of the garden. The English varieties such as Keepsake, Industry, Victoria and Whitesmith are among the best. Of the American sorts the Red Jacket will prove one of the best, especially for ripening and immediate eating. They should be planted five feet apart. The ground should be kept moist, and a mulch of decayed manure or leaves placed around the plant will give cool root conditions which are so suitable for this plant.

The White Grape, Wilder Red, and Victoria Black are currants of good sorts. They should be spaced 5 x 5 feet apart. Prune to eliminate the old wood, as wood older than three years does not produce much, or good, fruit. You will have satisfaction in increasing your knowledge as to how these and similar bush fruits should be pruned to keep them in bush form and produce much fruit of good size.

Raspberries should be planted in hills 5 x 5 feet apart, allowing 5 to 6 canes to a hill. A stake may be driven down in the center of this hill to which the canes can be tied. The Cuthbert is one of our best berries. Herbert, originated by your worthy President, Mr. Whyte, is hardier than the Cuthbert and a better cropper. If you have difficulty in getting a crop of fruit by all means try this variety. The Columbian, a purple variety, is good for canning and a great cropper. The cane fruits like lots of sunlight. The soil need not be excessively rich, but should be kept free from weeds, and loose and friable. Do not allow too many canes to grow, and, after fruiting, take out all of the old ones.

A few grape vines should be included in the garden fruits. These do well on a wire fence, or trellises of three wires may be erected for supporting them. The principal thing is to do plenty of pruning in the fall, not leaving too much bearing wood. Moore's Early and Campbell's Early are good early sorts.

It is always advisable to get No. 1 stock from a reliable nurseryman. See that the plants are set as early in the spring as possible, or the previous fall in some cases may be as satisfactory, although, as a rule, I like early spring planting.

Prof. Hutt: I fully agree with what the speakers have said regarding the value of a good fruit garden on every town or city lot where there is room for it. Probably the reason I have been called upon in this discussion is because I practise what I preach in my own little garden, which, although not within the city limits, is yet more or less of the town or city lot dimensions. Our garden has been so filled with fruits, flowers and vegetables that we have an abundance of nearly all we want for our own use, and often considerable to divide up with those who have not the same opportunity of growing their own supplies.

It is a very desirable thing on the part of the amateur fruit grower to know how to bud and graft, and yet there are very few who can qualify in these respects. One who understands budding and grafting fruit trees can derive much pleasure and profit from so doing in a small garden. There is an apple tree in my little garden which is bearing thirteen different varieties of apples. That may be an unlucky number and, possibly, may account for the fact that all thirteen varieties seldom bear the same year. I have practised this top-working of varieties with equally good results upon pears and plums; and, no doubt, for the sake of curiosity it might also be carried out in the production of flowers upon lilacs and similar bushes.

I would like to emphasize what Prof. Blair has said, regarding the desirability of having suitable tools for garden work. I could not look after such a garden as I have without the use of a garden wheel-hoe, which enables me to get over the whole plot and give it a thorough cultivating in an hour or two, which could not be done with the old-fashioned, back-breaking hoe in ten times as long.

Very little has been said with regard to the selection of varieties of fruits best suited for the amateur's garden. This is a matter in which there is great room for individual choice, yet one of the most important considerations is adaptability of the variety to the locality. This is a matter to which we have given considerable study in connection with our Fruit Experiment Stations throughout the Province, and as a result of what we have learned from them and through our co-operative work we have published lists of varieties of fruits best adapted to the various sections of the country. These we will be glad to send to any one desiring such information.

G. S. Bowes: I would like to tell you about my garden. I have two-fifths of an acre of land. On that I have a lawn-tennis court, 70 x 40; my house covers about the same amount; back of that I have 18 varieties of plums, 14 varieties of pears, 3 quince trees, 4 standard apple, 4 peaches, 4 grapes, red, white and black currants; red and black raspberries, thimble berries, and of course, a vegetable garden, and on a plot 3 x 12 I have 300 carrots. It is great pleasure to work in my garden. I am 78 years of age and work every day in my garden, and find it a great pleasure, comfort and happiness to present my friends with different varieties of fruit. This year I took prizes for ten varieties of pears. My trees are all standards. I would rather have more dwarfs. I have no trouble with weeds, because they are never allowed to grow in my garden.

F. Outram: In Hamilton one day I saw a little fruit, flower and vegetable garden, not half as large as this room; alongside the fence on wires were three kinds of grapes; just outside that, if I remember right, were raspberries; next to that several varieties of currants, then strawberries; inside that were a great variety of vegetables. Then there was a long walk and on this were tall flowers and short flowers right to the very end of the walk. I presume this man's place was not more than 20 feet, but the concentration of fruit, flowers and vegetables made me long to live in Hamilton.

J. D. Monteith: Our Stratford Society has done more within the last year and a half than they have done, possibly, in ten years previously. This is not all due to the Horticultural Society, although it is indirectly due to their sympathies, but partly to the action on the part of the School Board, of which I have the pleasure of being a member. The day Prof. Hutt arrived at Stratford I was unfortunately a little late. His visit was made, a draft was prepared, and a paper sent back to the School Board; it was discussed by the School Board and adopted, and to-day in every School-ground in the city of Stratford we have taught the children a lesson in Horticulture that they had not received in the previous ten years. If any one of you, directly or indirectly, have any influence with the members of your School Boards, in your various towns and cities, get in touch with them and with Prof. Hutt, and you will get the greatest benefit therefrom.

SOME GARDENS AND GARDENERS IN THE OLD LAND.

Miss M. E. Blacklock, Toronto.

A lover of gardens and gardening can have no greater treat than a visit to the Mother Land. The love of flowers and, indeed, of beauty in any form seems inherent in the people, and equally so is the love of neatness and order. There is little of the slovenliness in England that there is in Canada. From the delightful little railway trains one gets a back view of many houses, just as we do from our

trains, but there is a vast difference in the outlook. There you see prettily walled gardens, the walls of either brick or stone, containing vegetables in neat little beds, or flowers, or still more frequently, a happy combination of both, with the inevitable climbing rose on the house wall. Not one here and there, but all, with very few exceptions, are pretty, with everything to please and nothing to offend the eye. We all know, to our sorrow, what the view from our train windows chiefly consists of, when passing anywhere near the haunts of man. Wherever there are buildings, scrap heaps, ashes, tin cans, and rubbish of all kinds obtrude themselves upon the sight and we have not even the grace to plant a Virginia creeper or sow a handful of Nasturtium or Morning Glory seed to drape their hideousness. There are, of course, a few exceptions to this state of things, but they are deplorably few. Do we realize the importance of first impressions, I wonder? Surely, if we did, we would start a crusade of improvement along our railway tracks. The grounds around the English railway stations are most attrac-

The Single Weeping Hawthorn, *Crataegus Oxyacanthoides*, var. *Flore Pleno*.

tive and, for the most part, are beautifully laid out, with shrubs, trees and flowers in every nook and corner. In the country parts the station masters take great pride in their gardens, and many of the railway companies give prizes for the best kept station grounds, with the result that every little way-station is a blaze of flowers. They do not use geranium or "bedding" plants for these grounds, but Hollyhocks, Madonna Lilies, Roses, Campanulas, Iris, and many other hardy things and a great variety of annuals. The planting was not confined to one spot, but wherever there was any earth, if it was only a foot square, something was made to grow in it. Quite often narrow borders, a foot or two wide, were all the space that was available, but those little borders often vied with larger ones in beauty.

The public parks and gardens are also a great source of pleasure to the visitor. One can never forget their beautiful walks and shrubs on either side—and such shrubs! Hollies, Rhododendrons, Azaleas, Laurels, all with broad evergreen leaves, enough to make any gardener, living in so cold a climate as ours, green with envy; for these are not only extremely beautiful in themselves, but make such an admirable background for other things. Then the trees! Wonderful old

oaks with huge trunks and mighty branches, so old that one could easily fancy the Druids had worshipped beneath them, and yet so hale and vigorous that they seemed to challenge old Father Time to do his worst! Copper Beeches, with a smoldering fire in their leaves! Yews with their green mysteriously veiled in velvety blackness, and a host of the most delightful Conifers of all shapes, sizes and tints, some of them tapering into steeplelike trees, others broad and bushlike, and still others with fringe-like branchlets pendant from their sweeping boughs and graceful as a Birch! It would be very interesting to know how many of these could be prevailed upon to take up their abode with us as permanent settlers and not succumb to our winters.

The grandest flowering shrub of England, leaving roses out of the question, is undoubtedly the Rhododendron. For gorgeousness there is not its equal. At Kew, there are enormous masses of it which are a wonderful sight when in bloom, but, in spite of its magnificence, or perhaps because of it—it is not a very lovable thing. One cannot wax sentimental over it as one can over a simple Lilac by a gateway, or a bit of Gorse on the hillside.

A beautiful winding path in a garden at Ledbury, Eng. The border at the base of the shrubs is filled with the loveliest Auricolas, fragrant as Primroses.

Nature does a great deal of beautifying, entirely unassisted, in England, just as she does here, only differently. Every old ruin has its walls or window ledges, more or less grown over with various little plants, amongst which the Wallflower makes a wonderfully effective bit of coloring and one learns why it is provided with such long, flexible, ungainly looking stems, which are often so ugly when it is grown in pots and beds, but which give it a delightful airiness when we watch it swaying with every passing breeze on some old wall, high above our heads.

The first garden I was fortunate enough to see was in the quaint old town of Ledbury, in Herefordshire. From a Canadian standpoint, it was a large garden; from an English one, of quite modest dimensions, the grounds probably being four or five acres in extent, an ideal size, because there was room for magnificent trees, shrubs in abundance, a water garden, a rock garden, and a walled enclosure, for fruit and vegetables chiefly, and yet nothing was at all crowded. This garden was

so well laid out that you did not realize it was laid out at all. With the "art that conceals art," things seemed to have grown in just the right places of their own accord. Here, in a sheltered glade, was a low rocky bed of the choicest ferns, not one of our native ones missing that I am familiar with, except our "Christmas Fern" (Aspidium Achrostichoides). Expressing surprise that so handsome a variety had been left out, I was told that it had been tried again and again, but had absolutely refused to live. Varieties that we see only in our greenhouses grew there vigorously in the open air. That fernery was a revelation of the possibilities of the English climate. A little farther on, the glade opened out sufficiently to have a wide border on one side of the walk,—a border which curved with the walk and extended upwards, (for it was rising land), into the trees and shrubs. Many old friends greeted the eye in this border and one was introduced to many new ones. Great clumps of the Wood Hyacinths (Scillas; Hispanica, Nutans and Patula) were very lovely. They have nothing of the Scilla about them in appearance, being like large Roman Hyacinths. They come in various shades of mauve, blue, pale pink and pure white, and are most graceful and well worth growing. These are really the "Blue Bells" of the English woods, improved by cultivation. Trilliums, Foam Flowers (Tiarella Cordifolia), Mitre-worts (Mitella diphylla, and even the tiny Mitella nuda), and several others of our "woodsy" things made a very flourishing little colony in a sheltered nook under the trees. On one side of the wide stretch of grass, which was commanded by the house, lay a square, formal garden, some of the conventional beds of which contained magnificent Mayflowering Tulips, others Wallflowers, and others Polyanthi. Still nearer the house, a path, passing through shrubbery to the right, led to the Rock Garden, which was a wonderful bit of color in its spring freshness. This, you could easily see, was the owner's chief delight. He pointed out his treasures with all a connoisseur's pride, and he knew the botanical name and the habitat of every one. Many he had brought home himself from the Alps and the Pyrenees and various other places, some so minute that you might easily overlook them, others of more imposing growth.

From the rock garden we wandered into the Walled garden where the Daffodils had held high carnival a few weeks before in a long border devoted to their sole use. These must have been a glorious sight, for the choicest new varieties were here in all their expensive—and therefore exclusive—greatness, but when we saw them they were at the very unattractive stage of "dying down." Nectarines, Apricots and Peaches were grown on the walls, and Strawberries and other small fruits in beds allotted to them..

Passing on, we came upon a woodland path which led across the carriage drive to the other side of the grounds and to a Wild Garden where Primroses and Violets had erstwhile flourished and a stream wandered in and out, finally broadening into a good sized Lily Pond, bordered with graceful Sedges, Bulrushes and Iris, with Bamboos nodding their heads over them. Looking through the trees, one could see the deer grazing peacefully in Lord Biddulph's park which appeared to be part and parcel of these grounds, the low-lying stone wall which separated the two not being noticeable from where we stood. Crossing a rustic bridge, we came to the drive once more which led past the little lodge to the gate and so back to the town after a most enjoyable afternoon.

The next garden to be visited was Anne Hathaway's at Shottery, where dear, old-fashioned things, such as Madonna Lilies, Hollyhocks and other old time favorites still grow in artistic confusion, as they are supposed to have grown when Shakespeare was making love to her. And then Shakespeare's garden, where representatives of all the flowers he mentions in his writings are to be seen. To be

frank, I must say that they do not look as if they were tended by a hand that loved them, but perhaps I am mistaken.

Kew is the objective point of all gardeners and, in truth, it is a delightful place. The Rock Garden there lies in a little valley with sloping banks of rocks so placed as to give all varieties of exposure and filled in with soil, with the requisite characteristics for the particular plants it contains. Everything one ever heard or read of in Alpines, one finds there, sooner or later. My first visit was on the 27th of May. The Lilacs were nearly over, but the Hawthorns were in perfection, a small seeping one (Crataegus oxyacanthoides, Var. flore puniceo) a lovely single deep rose, was a perfect fountain of bloom. Wistaria draped an arborlike building with its long racemes of mauve flowers. Irises, great beds of them, were just beginning to bloom and the Rock Garden was entrancing. Notes were made of everything in bloom, to get an idea as to how the succession was kept up. Another visit a week later, on the 3rd of June, found the Rhododendrons the great attraction. Large beds, each of one variety only, made wonderful masses of color, the

Kew.—The Dripping Well in the Rock Garden.

one named "Mrs. William Agnew," an exquisite pale pink with edges of petals deepening into rose and no hint of Magenta about it, seemed the most beautiful of all and was quite as effective in the distance as it was close to. The formal beds were arranged rather more tastefully than usual. For instance, a bed of tall mauve Tulips grew out of a mass of blue Forget-me-nots. Another of brilliant crimson Tulips had a white Saxafraga (Saxafraga Wallacei) as a carpet, and so on. Later in the season, a bed of Statice latifolia, blooming over some small pink flowered bedding plant—what it was has slipped my memory—had a pretty veil-like effect. Kew is the spot to straighten out one's difficulties in nomenclature, though even Kew is not quite infallible. The Botanic Garden, however, is a very interesting spot and one can spend many hours there profitably studying the different species of one's pet plants.

The Royal Horticultural Society's Gardens at Wisley, are delightful. They should be seen in early spring when the Japanese Primroses (Primula Sieboldii) are out. They grow there like weeds, down by the water garden and in the damp

ground beyond it, where they are shaded by trees and shrubs. These grounds are laid out naturally and are very attractive. On each side of a broad driveway, as you enter, there are wide beds of roses, backed by climbing varieties trained to poles, placed tripod fashion. It was mid July when I was there, and there was a splendid show of bloom. Three of the showiest of the climbing ones were Ard's Pillar and Ard's Rover, two lovely crimsons, the former strongly perfumed, the latter perhaps the handsomer, but not so sweet, and Mrs. W. Grant, an exquisite glowing pink, tea scented.

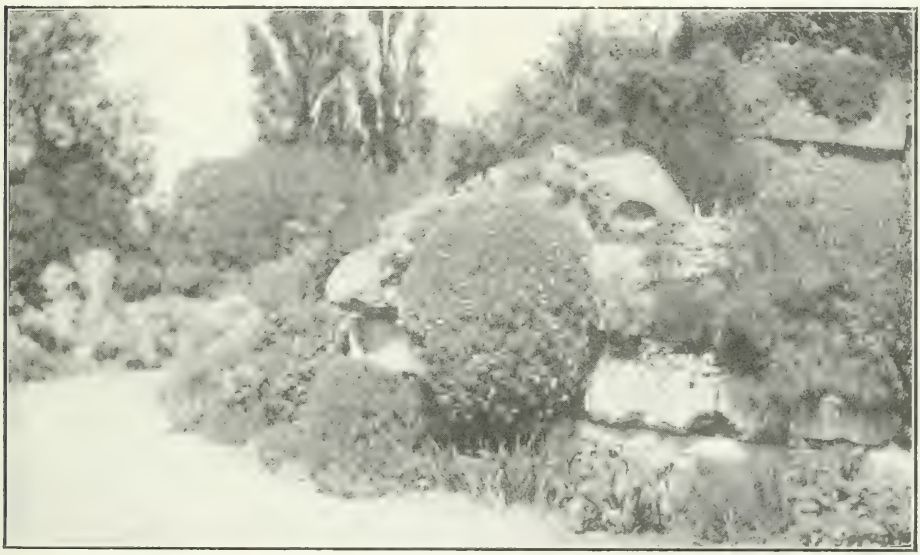
There is a charming Wild Garden, which well repays a visit, and below it is the Water Garden, consisting of a rather sluggish stream, which widens here and there into pools on which Water Lillies float lazily, great golden-hearted flowers of many lovely tints. Clumps of Japanese Iris (Iris laevigata, sun. Kaempferi), Sagittaria and many other water-side plants grew, partly in and partly out of the water, as their habit is when they are allowed to do as they please. As one looked up the stream, a fine clump of Firs, with magnificently colored Colorado Blue Spruce in the foreground and a Gunnera with its colossal leaves bending over the water, made a picture well worth a journey to see. A wide perennial border and many charming little bits of shrubbery, trial beds of Phlox, Sweet Peas, and a particularly fine lot of the various species of Campanulas made a two days' visit all too short.

Not the least interesting part of one's stay is the coming in contact now and again, as one wanders around, with the students. Two of these with whom I fraternized were charming young men and enthusiastic botanists and lovers of flowers. They were most gentlemanly, and gave me any help or information I wanted willingly. Both happened to be Scotch. The younger of the two was a brilliant scholar, and had just carried off the Gold Medal and I forget how many scholarships. I had lodgings where he boarded and his thirst for information regarding our Canadian Flora was wonderful. His ambition lay Kew-wards, and there is little doubt he will make a name for himself if he does not ruin his health by overstudy.

The big border at Hampton Court is well worth seeing. It is a long straight border, very wide and a blaze of flowers, chiefly perennials, but annuals were used to fill up odd spaces, probably where bulbs have been in the earlier part of the season. Amongst these a rich, crimson Viscaria was the most brilliant thing there, though some very rich colors in Potentillas were very fine. To the left of this border were large beds of various showy things. One of Delphiniums made a grand mass of blue against the green background of the trees. There was also a very fine bed of paeonies, just in their prime. It was the 21st of June. The trip from Hampton Court down the Thames by boat to Richmond is most enjoyable. On each shore are picturesque house boats, cottages and handsome residences, with beautiful grounds coming to the water's edge, and as the little steamer goes obligingly slowly, one has ample time to enjoy the ever-changing view.

The Royal Horticultural Society's July show is held at Holland House, an historic old place, the grounds of which are even now being cut up into building lots, the land being too valuable to be allowed to lie unused any longer. Indeed, it is wonderful to think it has escaped this fate for so many years, a bit of beautifully wooded country right in the midst of London's rush and whirl! Those attending the show are permitted, by paying a fee of a shilling or two, which is given to some charity, to go over the grounds. This was a chance not to be missed, despite a drenching rain, as the Gardens are quite celebrated. A large stretch of lawn, with flower beds here and there, occupied one side of the house, the end of which opened

on a walled in, formal garden, good of its kind. The wall on one side formed a back to several glass houses or conservatories and, by mounting a stairway in the one farthest from the house, one came out on the roof, which formed a wide promenade all along, overlooking the formal garden, as well as the grounds in general. This was a very delightful feature. This promenade ended in a flight of wide steps down to the other side of the house, not far from the front door. The walks in the grounds were so arranged that they seemed endlessly long—and rather tedious, to be truthful, branch paths leading here and there to various points of interest, such as the Rock Garden, the Rose Garden, the Japanese Garden, etc. The last was pitifully artificial and the whole effect very poor. In fact, taken as a whole, the grounds were badly laid out, and nothing like as beautiful as they might easily have been, with such magnificent opportunities. The trees and shrubs were lovely and of course no place could be ugly with them for a background, but the garden itself was a hopeless jumble of beautiful things, with no repose about it.



Kew.—A View of the Rock Garden.

Delightful visits were paid to Messrs. Barr & Sons' Nurseries at Surbiton, where one could wander around for hours at one's own sweet will amongst all their lovely things, getting valuable information all the time. At Messrs. Perry's at Enfield, Mr. Perry, Junior, with a wide knowledge apparently of the Flora of the whole world, went around their grounds with me and showed me his best beloved treasures, specimens no money could buy, as well as the grand collection of herbaceous plants that they have for sale. Their collection of Delphiniums is superb and won the Gold Medal at the Holland House Show. Their stock of Alpines of all kinds of Backhouse & Sons, at York, is wonderfully complete. Their place is beautifully laid out and their Herbaceous Borders and Rock Garden are extremely interesting.

The gardens at Maddersfield Court, Earl Beauchamp's place near Malvern, are very quaint and the trees are magnificent. A beautiful stream runs through a ravine in the grounds and full advantage has been taken of it to plant waterside

things. A little island in it was devoted to Primulas of all kinds, some of which were in bloom in August. The somewhat steep banks were clothed with many beautiful things. There was quite an imposing Rock Garden in which ferns grew in riotous profusion, but, though beautiful, it did not give you the idea that Nature had had a hand in the making of it. A Rose Garden, enclosed with a hedge cut into divisions with arms to them like those of a bench, had a quaint effect, like so many stalls. A moat surrounded the mansion, the walls of which, on the house side, were covered with roses which were smothered in bloom. There was a maze and also a small enclosed garden, with a sun-dial at one end of it which was very pretty.

A charming garden up in Duns, Scotland, was as interesting as its owner, a doctor, who is as great an enthusiast as our President. His two special favorites were Primulas, of which he has all the rarest varieties, and Delphiniums. Of the latter, Mr. Quick, of "The Garden Magazine," spoke in most unstinted praise, saying they were the finest he ever saw and he has ample opportunity for judging. They were so nearly over when I got there that it was unfair to compare them with others seen in the height of the Delphinium season, but even then they were very fine. The Doctor was awarded a Bronze Medal at the great Edinburgh Flower Show in September for a stand of Primulas he exhibited, at which he would doubtless be much elated. The lovely Penstemon, "Newbury Gem," made a wonderfully vivid bit of color in this garden and the Shasta Daisy, "Edward the Seventh," which is not specially tall here, grew at least four feet high. He had a little bit of border devoted to the various varieties of Heather and a very interesting and beautiful group of plants they were. He is a clever gardener, for his borders were full of bloom, though it was September, and we all know how hard it is to plan for succession of bloom when the season is nearly over.

The two Japanese Gardens at the Japanese-British Exhibition were, perhaps, the most satisfying of any, despite the fact that they contained very few flowers. Their very names suggested beauty and were not misleading, "The Garden of the Floating Island" and "The Garden of Peace." Anything more artistic and beautiful than these two gardens it would be difficult to conceive. You left the noise and glitter and jostling crowds of the great Exhibition behind you and, the moment you entered the precincts, the spell of their loveliness fell upon you and you lost all sense of weariness, and just allowed the peace and the quiet and the perfection of it all to sink gradually into your soul. Grass, rocks, a little bridge, a pagodalike summerhouse, a shimmering pool, a stone lantern or two, some of the crimson-leaved dwarf Japanese Maples and a few small trees, mostly Evergreen and of tapering shape, these were the materials used, but an artist combined them. Verily the Japanese are a wonderful little nation.

Hon. J. S. Duff, Chairman: I wish to congratulate you on the large representation of ladies and gentlemen present here to-night from all parts of our fair Province, who have assembled in this great Convention for the improvement of home surroundings and betterment of civic conditions. While the work you are doing is largely confined to cities, towns and incorporated villages, yet my contention is that whatever tends to the elevation of the dwellers in urban sections has a reflex influence on the tens of thousands of farmers and their families who are, in the nature of things, closely identified with the larger centres of population, and it is for you, ladies and gentlemen, to continue your splendid work round the stately

piles of the cities, the humble cot of the labourer and the rural homes of the farmers.

We have with us to-night my honoured colleague, Col. Matheson, the gentleman who holds in his hand the purse strings of our Provincial Treasury. When necessary work is to be done, the Government of which I am a humble member is ready and willing at all times to do its part in assisting those, like yourselves, who are doing so much for the Province of which we are all so proud. My function as your Chairman to-night is chiefly to carry out your programme, and, not being a monopolist, I will proceed promptly to business, and will now introduce to you my friend and colleague Hon. Col. Matheson.

ADDRESS.

Hon. Col. Matheson, Toronto.

My first duty here, after visiting the Exhibition yesterday, is to congratulate you on the magnificent display of fruit, vegetables, and flowers at your Exhibition. It is something of which you and the Province may be proud that we are able to make such an exhibition in this City of Toronto, and it must be instructive to the people of this Province, showing what can be done.

I understand that your connection with fruit is more in the aesthetic line, or rather such connection as you would have if you had a garden and some fruit trees, and mainly flowers, but I would like to say a few words on the importance of the fruit trade of Canada. Now our exports in the last financial year, ending 31st October, were some five and a half million dollars; of this four and a half millions were in apples, and some one, I believe your President, said that Ontario exported three-quarters of the apples of the Dominion, but as to that he will have to make his peace with Nova Scotia and New Brunswick. Besides the above we exported of dried fruits nearly half a million, and I was surprised to find that the little country of Holland took nearly half of the dried fruits; the United States, Great Britain and Germany each ninety thousand dollars worth; and of green fruits, other than apples, nearly half a million—altogether five and a half millions.

This was about two millions more than in the previous year. These figures do not show the progress, because within the last year I might say that the shipments made to the North West have increased enormously, and there is no doubt that in great part, owing to the action of your societies and the fruit growers, and the assistance given them, and the progress that has been made, the importance of the Fruit Industry has been immensely increased. It is beginning to be appreciated.

I was in Norfolk County this summer, and while I was there I had an opportunity of seeing the beautiful gardens of my friend, Mr. Groff, with the Cocker Spaniels, beautiful to see, black, white, and red ones. I went purposely to see fruit farms, and to get an idea of what can be done. We were taken to a farm of forty acres, of which thirty acres were in orchard. Some years ago that forty acre farm was sold for $2,000; five years ago for $5,000; and last year for $17,500, showing an immense increase in the value of fruit farming, and the importance of it to the Dominion and the Province, and the man who bought it was one who thoroughly understood it, perhaps the most expert fruit-grower in the County of Norfolk. He expects to take off it $9,000 at an expense of $2,500; so that he will have on his $17,500 a profit of something like $6,500.

That shows what can be done by means of spraying, which is practically overcoming the scale, and the cultivation and pruning of the trees, things which through your Fruit Growers' Association, and the assistance given them through the Colleges, have been brought to great perfection. I think that with care we need fear no more scale to deplete our production of fruit.

While talking commercially, I might mention the Legislative grant. You ask for increased grants. I want to explain matters from the Government's point of view. We are now at a stage where our current revenue is only equal to the expenditure, and any increase of grants ultimately comes out of you. If you increase the taxes, no matter in what respect you do it, the people in the end suffer for it, and you have always to consider that when you ask for grants.

But we have been fairly liberal: six years ago you were getting $6,000, now the grant is $10,000. What does that mean? You are getting forty-five per cent. of your total receipts from the Government.

Kew.—Another Portion of the Rock Garden.

Compare that with others: Good roads, hospitals, charities, the opening up of the North Country, asylums, administration of justice in that far country—the demands are innumerable: but take hospitals, for instance: surely no worthier charity could make demands on the country than hospitals, and yet they get twelve per cent. of their receipts, as against the forty-five you are getting. I ask you is it fair that you should come to the Government when you are already getting forty-five per cent. of your contributions, and charities, like hospitals, in which you are all interested, are only getting such a small percentage? They are crying for aid and come to us for assistance. It is a popular thing to do, to ask the Government to pay, whether you are justly entitled to ask for aid or not.

I must congratulate you on the increase in your membership, but here in the city of Toronto are you doing the work you ought to do? There are some three hundred—under three hundred—members in Toronto. Why, Hamilton has more. In Toronto, with its beautiful homes and gardens, parks, and all the attention paid to flowers, you have only three hundred! St. Catharines has double the number. Windsor and Sandwich three times as many.

J. Lockie Wilson: Pardon me, you are speaking of 1909. In 1910 Toronto increased its membership to 800.

Hon. Col. Matheson: I am glad to hear it. But it is an object to get these people in, not so much for their money as for their interest in the work. Of course it is advisable to get that too, but you get them interested in the work that you are doing, and that is a great thing. I hold that it is the duty of every man and woman in this country to do something for it. They may not be able to do much, different people are in different positions, some are better able to do work outside of their own business, but every man and woman has his duty to perform in connection with the country, and through this Association is one of the means by which you can perform that duty. You teach the neighbors to cultivate their gardens, to improve their places, and one of the ways I think that might be done, unless you are living on a business street where it is not convenient and too public, is to take down the fences and let other people enjoy your garden.

Now, I make that distinction partly to save myself. We live on a main street and our garden is enclosed with a stone wall. That is our only excuse: we do try to show it to as many as possible, but our town is divided into four-acre blocks and we happen to have the centre one. Our garden is a beautiful one. It was laid out by an English gardener before I was born, and one of the greatest sources of pleasure that our family and I have always had, has been the garden. It is not all flowers; we have apple trees, but not too many to spoil the flowers. It is one of the charms of Perth, and, being enclosed in a stone wall, it is a surprise to everybody who views it from inside; but, as I have said, one of the ways in which you can give your neighbors enjoyment is in throwing open your gardens to the people, and it is a great pleasure to show strangers and your neighbors your garden.

Then can you not do a great deal, each one of you, by giving bulbs and plants to those who cannot afford to buy them, if they will promise to look after them. Also by giving them to children who will care for them, thus creating a taste for the beautiful.

Yours is a great work and you are making splendid progress. Of late years, all through the Province, the love of flowers, humanizing as it is, something that makes the home attractive, makes the people look back to it as something that they can remember, is caused by the garden. Children, even if they have not one of their own, can keep a few plants in flower beds, and they gradually get this love of flowers, and your Exhibition, which I was so glad to see yesterday, gives them an idea of what can be done, what possibilities there are, and in this way the Horticultural Society of Ontario is doing great work. I congratulate you heartily on the interest you are taking in it, and on the progress you are making, and I wish you every success.

Hon. J. S. Duff. I am sure we have enjoyed very much the address of the Provincial Treasurer. I was very glad that he talked so frankly to you as representatives of the Horticultural Societies of the Province with reference to the matter of your grant, from the fact that it was I who was appealed to, and the grants come through our department. I am glad that there has been an opportunity for the honorable gentleman to refer to this. You all know he is very careful with our money, takes every opportunity of getting every cent in that he possibly can, and does not want to let a cent go if he can help it: still, after all, we ought to be proud of him for that, and I feel very pleased that he spoke so frankly in reference to the matter.

ADDRESS.

W. S. B. Armstrong, Representing the Civic Guild, Toronto.

I have to convey to you the greetings of the Civic Guild of Toronto, and say that we appreciate very much your asking us to be represented here. I have no intention of making a speech on the objects of the Guild, but I want to ask your co-operation.

For many years the Guild has been trying to secure the adoption of a comprehensive plan of Civic Improvement, and last year they secured the appointment, by Mayor Oliver, of a Civic Improvement Committee, composed of members of Council and other citizens, and Hon. Sir Wm. Ralph Meredith was chosen Chairman. Having no funds the Committee reported in general terms, approving the undertaking. This year the Guild secured the reappointment of the Committee with an appropriation of $2,000 to defray preliminary expenses.

They will employ expert aid, and the hope is that before the Committee concludes its labors Toronto will have a comprehensive plan of improvement that has been passed upon and approved by the most skilled city planning ability available.

Now, to secure any practical results from such a plan as that, it is necessary to create informed public opinion, not only in the city, but outside it.

The plan adopted by the city of Toronto will beneficially affect every town and village in the Province. This is the Capital City of the Province, and the effort to make it a beautiful city will be an inspiration to every town and village in the Province to do likewise. There is not a city or town that could not be improved if they had such a plan, and at a small expense to the ratepayers.

That is all I am going to say about the Civic Guild work. I ask you, whenever opportunity offers, to create public interest in the improvement of the Capital City of the Province, and probably in the days to come the Ontario Government will rise to its opportunities and do something for its Capital City, just as the Government at Ottawa have done much to embellish the Capital of the Dominion.

What I have to say is merely a suggestion, along the line of Horticulture in schools. I mean the adoption of gardening, horticulture and all that it means in our City schools, with a view to bettering education. In Chicago, more than 65 acres of these gardens are now under cultivation, under the direction of the Chicago City Garden Association. More than two thousand men, women and children are engaged in cultivating this acreage. These represent about four hundred families.

There is no question, but that there are thousands of boys in cities who would gladly go to the country if the way were opened by School Gardens. I want to quote one instance which will illustrate the idea I have in mind. It is told by Otis W. Caldwell, formerly of the Eastern Illinois State Normal School, and now of the University of Chicago.

He had a somewhat troublesome boy, who did not want to work in the garden of the Normal School. Discussions of bees, of beautiful flowers, of thrifty vegetables, or experiments in crossing varieties of corn did not appeal to him. Finally he was asked if he did not wish to see how much money he could make by growing radishes in a bed six by twelve feet. This appealed to him, and he no sooner had planted the bed than he asked for another. He was allowed one-half of another bed.

He began at once making plans as to the disposition of his radishes, and engaged his entire crop to a local hotel, agreeing to furnish bunches of twenty

radishes at five cents a bunch. The receipts from the sales to the hotel were $2.65, and radishes worth 85 cents had been taken to the boy's mother for home use, thus making a return of $3.50.

The next season the boy persuaded his parents to rent a vacant lot for his use in growing potatoes, and during the season following he had charge of a small farm. He is now especially interested in the science of agriculture and is planning to take a course in an Agricultural College.

That is just one instance to show what can be done. There are thousands of boys who are, through no fault of their own, restricted to a life of mediocrity because they are not fit for city life.

In conclusion, I will tell you what we have been doing in Toronto. 18,000 plants are placed in the school gardens every year by many of the children, largely

A well-kept Roadway. Photo from Mr. Jaffray.

under the supervision of the caretakers. An arrangement was made by which seeds are bought from large dealers at one cent a package and 50,000 packages were distributed for home growing. This shows that interest is awakened in Toronto, and that the authorities are aware to some extent of the usefulness of Horticulture. In two of the schools are gardens; King Edward School got part of a church garden, and the boys looked after it, and they picked flowers while in bloom for each of the school rooms. Something similar was done at the Park School.

In the Province at large the School Act provides for the Local Boards to employ competent teachers for Agriculture and Horticulture, and special grants are provided for that purpose. In addition, special short courses are taught at Guelph College for Normal School Graduates, and several hundred graduates have already taken advantage of this opportunity, but the main driving power

remains with the local authorities, and that is why it is necessary for every member of this Association to do his best.

I would urge those of you who are citizens of Toronto to further extend this work, and the 800 members of our local society ought to be able by a little agitation, to secure the teaching of Horticulture in our schools.

That is the suggestion I have to make, and I wish to thank you in the name of the Civic Guild, and to remind you that every one of you can do a great deal towards the creation and support of a better plan for a beautiful city.

NATURE STUDY IN PUBLIC SCHOOLS.

PRINCIPAL WM. SCOTT, TORONTO.

I need not apologize for selecting one of the "Frills and Fads" of the modern school, about which I may say a few things to the members of the Ontario Horticultural Association. This organization is, or ought to be, directly interested in this part of school work for:

(*a*) Its purpose is to extend the knowledge of the growth of fruits and flowers.

(*b*) To determine the best kinds of these for certain soils and climates.

(*c*) How best to combat the insect enemies of fruits and flowers.

(*d*) How to improve the conditions under which fruits and flowers can be best grown, etc., etc.

Now how can these be accomplished? Only in one way, to get the people interested in this work.

How can one interest another in any work? Here again there is only *one* way: Get them to know about the work, its benefits, and see and understand its practical utility.

Now we all cannot go to an Agricultural College, such as Guelph, where we can study the best conditions under which fruits and flowers of various kinds thrive, but the teacher can do much by means of the School Garden and work in Nature Study to arouse an interest in plants, which will result in gardens about the home a few years later. We can get our teachers to do far more in our schools, and especially in the rural ones, than they are doing at the present time.

I have travelled through the counties of Ontario during the months of September and October, and I cannot recall seeing one school garden in driving around the country, or even a little flower plot. I regret this, I have spoken about it, and one of my purposes this evening is to ask you to see if you cannot bring some dynamic interest into the teacher, and perhaps into the Public School Inspector, and make the machine move as the Education Department would like it to.

This word "Nature Study," I think, is a very poor name; I prefer "Nature Acquaintance." "Nature Study" savors too much of school work. If we used the term "Nature Acquaintance," we should, perhaps, make more progress than we are doing. It should be less critical and less minute. There should be no minute dissections of natural things; minute studies of natural objects very frequently create a dislike. The subject of investigation should be a living thing. There is nothing that interests one so much as a living object, and so I deprecate the pulling of flowers and the breaking of branches in connection with the so-called "Nature Study." As I see it Nature Study is a method rather than a subject. It

better expresses the spirit by which one becomes acquainted with the common things about him than its definite content or subject matter. It is not getting information about nature from books, or lectures, but it is a certain attitude of mind towards all the phenomena of nature. The end is growth of mind rather than mere knowledge; hence, the teacher of Nature Study thinks of the effect of his work upon his pupils rather than of the content of the subject he is dealing with. He considers how his pupils know rather than what they know: he considers whether he is awakening his pupils or deadening their powers by cramming them with facts.

That is one of the faults of what we call "Nature Study": Teachers simply try to put forth facts; it has been used and is used at the present time in Ontario as a subject with which to stuff the pupils' minds with some additional facts, rather than to grow and expand and become lovers of Nature.

Nokomis was a true teacher of Nature in Hiawatha. Under her guidance,

"Of all beasts he learned the language,
Learned their names and all their secrets;
How the beavers build their lodges,
Where the squirrels hid their acorns,
How the reindeer ran so swiftly,
Why the rabbit was so timid,
Talked with them whene'er he met them,
Called them Hiawatha's brothers."

I would like to say a word about the comparative value of Nature Study. How are we to study? We must go to Nature. Cannot I study Nature out of books or from specimens? Yes, in a way, but let Emerson answer:

"I thought the sparrow's note from heaven,
Singing at dawn on an alder bough:
I brought him home in his nest at even,
He sings the song, but it cheers not now,
For I did not bring home the river or sky:
He sang to my ear—they sang to my eye.
. . . . . .
The delicate shells lay on the shore;
The bubbles of the latest wave
Fresh pearls to their enamel gave,
And the bellowing of the savage seas
Greeted their safe escape to me.
I wiped away the weeds and foam,
I fetched my sea-born treasures home;
But the poor, unsightly, noisome things
Had left their beauty on the shore
With the sun, and the sand, and the wild uproar."

Utility Value: Observation of the common things about us furnishes the mass of fundamental ideas. This opens the eyes and ears of children to the fact that,

"Earth is crammed with heaven, and
Every bush alive with God;
But only he who sees
Takes off his shoes."

I was greatly pleased this afternoon to hear a delegate who said he was 78 years of age stand and say, "You know I enjoy good health because I work in my garden." And here is a fact: Statistics show that gardeners furnish fewer criminals than any other class of people—not excepting teachers or preachers. Then look at the genuine pleasure to be had from a pursuit of Nature!

I quote Longfellow again: "Agassiz's Fiftieth Birthday."

"And Nature, the old nurse, took
The child upon her knee,
Saying: 'Here is a story-book
Thy Father has written for thee.

"'Come, wander with me,' she said,
'Into regions yet untrod;
And read what is still unread
In the manuscripts of God.'

"And he wandered away and away
With Nature, the dear old nurse,
Who sang to him night and day
The rhymes of the universe.

"And whenever the way seemed long,
Or his heart began to fail,
She would sing a more wonderful song,
Or tell a more marvellous tale."

How interesting, as well as useful, to observe:

(*a*) The Life History of a plant—or animal.

(*b*) The hardships endured.

(*c*) The struggles with competitors.

(*d*) The struggles with cold, or famine or drought.

(*e*) To know the meaning of hairs, thorns, prickles, of thickened leaves like cacti, of variation of size of leaves, and of length of petals, and the shape of roots.

How interesting to be acquainted with a tree—or herb:

(*a*) Where it grows.

(*b*) The kind of soil it favors.

(*c*) Its general appearance.

(*d*) How its trunk sprays or divides.

(*e*) The nature of its bark and twigs.

(*f*) Its flowering and its fruiting.

(*g*) The arrangement of its leaves, the reason, etc.

There is one more thought, and this is the thing that I came here to speak about to-night. You know that there is no permanency in the teaching profession; that is one of the great complaints we have to make about our teachers, they do not stay with us; and, before we can have a reasonable amount of permanency, we must have men. Women teachers are necessary, they have their place as teachers for the mothering age, but men are needed for the boys and girls of this country.

How can men be got? As I see it, and it may only be a dream, we must have two things: One is that there must be a fairly liberal superannuation allowance. A man must feel that there is some provision for old age, so that when his day of work is done he will not become a burden upon society or upon his family. The other is that in order that men may be predisposed to become teachers, get married and still remain teaching, some scheme of inducing school boards to provide residences and suitable gardens should be prepared. Such a generous provision for teachers would induce men to fit themselves for their great work. They would be content to live in the country, teach their schools, and care for their gardens. The result would be that the example set by this esteemed and honoured man would, in many instances, correct the craze that is now abroad of rushing to the city.

Group of Foliage Plants at C. N. E., Toronto.

Thus one of the most serious problems with which Ontario is now confronted, "How to keep the boys and girls on the farm," would be solved.

In addition to the example set, the teacher would create country ideals in his school. He would cease to extol the city, he would cease to talk of captains of industry, and would extol captains of fields and of live stock. The ideal occupations would become those of the farmer, the fruit-grower, the stock-raiser. The example set by his living in his quiet cottage, surrounded by its garden and shrubbery, would turn the ambitions of the boys and girls from city attractions, with their noise and rush, to rural life and occupations, with their peacefulness and contentment. Agriculture and Horticulture, illustrated by his example, and an appreciation of the true worth of life upon a well-managed and well-equipped farm, would find a place in his school curriculum. Thus the teachers of rural schools would do much to make the ideals of the schoolroom rural in their nature, and rescue many a boy and girl from a life of oblivious inefficiency in the town or city.

Now to show that this can be secured, I would just like to call your attention to the fact that there is no trouble in getting men in Germany to teach school. There is a provision made for them; it may not be very liberal, but they are cared for. The same is true in France. In this country, in the neighborhood of Guelph, there is a Scottish district, and at several of the schools in this district there are residences, and in one of these residences there have been only six or seven teachers.

Is there no one with sufficient public spirit to do for teachers' residences what Mr. Rittenhouse has done for school houses and school gardens in the Niagara District?

ADDRESS.

Dr. Reaume, Minister of Public Works, Toronto.

I am glad to be here, and see the interest manifested in your work.

My colleague, Mr. Duff, asked me to accompany him to the Flower Show in the St. Lawrence Arena, and there I had the pleasure of listening to his excellent address. My friend knows this Province well. He paid a great tribute to the ladies and gentlemen for the display of flowers, the care and culture of fruit, the magnificent display of honey, vegetables and so forth. He took, as it were, his hearers by the hand and travelled through Durham, Peterborough and Simcoe; he went through the various districts, stopped at the County of Lambton, and failed altogether to speak of Essex, the Garden Spot of Ontario.

I can assure you I was delighted with the addresses here to-night, and to illustrate how true his words were, as Mr. Scott was talking I was reminded of once taking a trip from Walkerville to Leamington. In the car sat a handsome young lady, very well educated, who had been abroad studying music and dancing—I am not sure she could cook a pot of mush—but she seemed to be most modernly equipped with a fine education. We were discussing the beauties of Nature as we were travelling along, and passed what is usually called Walker's Farm, and the hop fields, with poles as long as this room. After travelling through Canada and the United States and Europe, she said: "Is that really Walker's tobacco? I had no idea it was so tall as that." Perhaps had she followed or listened to the address of our friend, she would have realized the necessity of studying more closely Nature's work, and not rely altogether on books. I am pleased, indeed, to have

had an opportunity to be here to-night. No one could fail to get inspiration from a Convention such as this. I wish you every success, ladies and gentlemen, in the work you are engaged in.

BEAUTIFYING OUR CITIES.

R. B. Watrous, Secretary, American Civic Association, Washington, D. C.

After listening to the very interesting addresses that have been made here by members of the Legislature and citizens of Toronto, I cordially endorse the words that have been spoken by the representative of the Toronto Civic Guild in urging that you, as representatives of the various parts of the Province of Ontario, lend your support and approval to what Toronto, your Capital, hopes to do for its development in aesthetics, and in a very practical way, during the years to come. It is very important that the Capital of a State, or of a Province, should at all times set the best possible example to every other town or community in that State, or Province; and thus it is that in many of the States in my country there is a constantly increasing appreciation of the importance of making the State capitals just as beautiful as possible, in order that they may be models to the smaller towns and cities in those States.

Toronto has got the new spirit, which prompts it to depart from the old-fashioned method, which we call a hit-and-miss method, of making cities, and to strike out on a new line of procedure, which is what a business man follows, by drafting for itself a plan, carefully made, put on a blue print, with architects to prepare it, and which may be followed for a long course of years, the expense of which may be estimated now and distributed to cover a long term.

This, in brief, is what city planning comprehends, a very sensible movement, a step forward in that it is a departure from haphazard effort for order and system.

You have with you to-night the Minister of Finance for this Province. He is the one of all men who can appreciate the desirability, the importance of having a plan for the great work that may be done for Toronto. While such a plan appears to involve a large expenditure, it must surely mean a saving in the end.

You in Canada know something about conservation, just as we in the States know a great deal about it. There is a little sarcasm in that, as sometimes we think we have too much conservation, but there must not be waste in destroying.

I wish also to say a few words regarding the excellent suggestions concerning the educating of children. The profession of agriculture is a dignified one, and something to be looked forward to by the boys of our cities. I am a city man, and was born in a city, but some day, I believe, the boys of our cities are going to be more ambitious to get back to the soil; they are going to seek those avenues of prosperity, rather than go through the counting house or into manufacturing plants, and so, anything we can do to encourage the boys and girls in the tilling of the soil, in the raising of vegetables, the things which most contribute to our maintenance, we ought with all our heart to encourage.

I am glad that I have a few pictures and illustrations of some children's gardens, but I remember you had with you last year a most enthusiastic woman and teacher, remarkably competent in training the youth of the city of Cleveland in agriculture, who has done wonders in starting boys, who were going to be failures, on a career of dignity, because she interested them in the soil and they got back to the country. I refer to Miss Miller.

We are in an era of Civic Improvement. I presume it would be hard to put our finger on just the particular year when this era arrived, when the greatest impulse was given to the movement, but it is a part of the natural development. We think we are improving in a great many ways. Our men and women are living outdoors, in our homes we are not satisfied to keep the windows closed and breathe the same air over and over again; business men want to get out on the golf grounds and play golf; they are some day going to be as healthy as those gardeners, and this contact with Nature, this breathing of the clear air which is making us stronger and healthier, is all an appreciation of our surroundings.

Years ago we did not think it particularly important to have gardens in our yards, although some of us appreciated them—your Provincial Treasurer takes pleasure in his beautiful garden, but I recommend that he take that fence down. Toronto has a great number of fences, but it is not the only city—Washington also has many beautiful gardens enclosed with fences, but some day they will be taken down. The Civic Improvement Societies are going to demand this on the ground that each one has some responsibility in letting other people enjoy them, the fences will be taken down and there is going to be one great beautiful world, and we are going to have as much enjoyment as possible.

I want you to bear in mind that as I talk to you about the beautiful, I have in my mind the beautiful which is practical. We fail in our efforts in the interesting of business men in the making of beautiful cities unless we keep before them the fact that the beautiful city is a practical city, a healthful city, and the business man or association of business men are going to recognize, as never before, the truth of this fact, that they cannot hope to attain to the greatest achievements in material prosperity, which adds to the growth of manufacturing plants, until they have made their cities good places to live in.

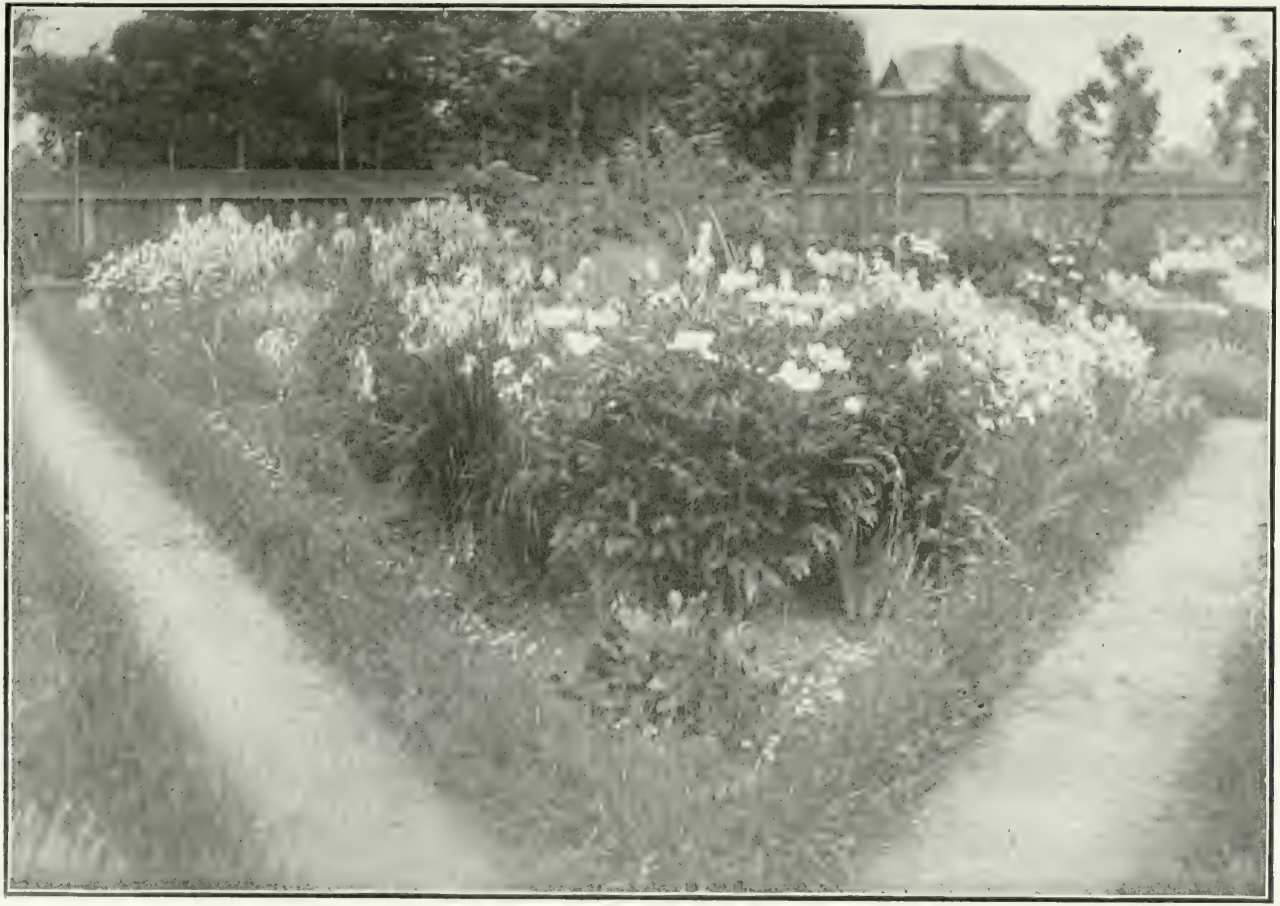
You probably have in your city, and other cities in this Province, business organizations ambitious to increase their outputs, ambitious to secure hundreds and thousands of new operators, and they have been bending their efforts in this direction alone. The efforts have been lop-sided when they have failed to devote the same amount of attention to the physical development of the city. Why? Here is a simple instance: What would you think of yourself if you were to invite a guest to your house and not provide a guest chamber? And yet cities have been advertising, spending thousands of dollars inducing new operators to come to their cities, and they have not been ready for them.

The investor of labour is going to be just as discriminating as the investor of capital. He has been given opportunities to read. Vast sums have been spent for the education of the labouring man, and he has come to the conclusion that he wants something more for his children than schools—he wants playgrounds and playground directors; he wants parks and beautiful streets, and, other things being equal, the labouring man is going to that city which offers the most facilities.

And so, if Toronto, St. Catharines, and other cities of this Province are ambitious to swell their cities by the importation of labourers they must realize that they must get their cities ready.

I have mentioned these facts to show that there is a very practical phase to the arrangement of our cities. I would not have you attain to the beautiful for mercenary motives; we devote our energy and our money to those things which will make broad avennes where we ought to have them; which will give us clear water, purer residential districts, and to that extent we may be happy and healthy.

I wonder if any of you recognize a street from your own home town in this first picture shown you? Of course none of you would admit it, but this is a type



Single Pæony in foreground, Siberian Iris to the left, German Iris to the right. Photo by R. B. Whyte.

of street that may be found in any city in the United States—I will not venture to speak of Canada. Here are conditions which ought not to prevail, indicative of bad health, poor morals and callousness, which show that people have not given thought to the street litter; that the public officials have been neglectful in doing their work, in carrying away ashes and other debris.

The City of Washington, which is said to be one of the most beautiful cities on this Continent, has, if you will look for them, streets just as bad as this, and the citizens there are ambitious to solve the problems which may relate to the elimination of such conditions as these. But, we must first appeal to the individual property owner and effect the changes that are intimate and relate to the home, that can very often be effected with very small amounts of money; in transferring unattractive back yards and front yards into little beauty spots, which may surround homes—after all there is no place like home.

Of course, we are all ambitious to have beautiful homes, a laudable ambition on the part of all of us: homes which may face beautiful thoroughfares, which may have grass plots about them, or may be planted with shrubs, possibly, sometimes suggested by landscape gardeners, who will tell you to stick as close to Nature as possible. Note the touch of improvement that is brought to this house in the picture by planting of vines, and still more remarkable the beauty—conditions which may be obtained by every one.

This row of houses has been beautified by the window gardens, which we are so proud to credit to the Mother Country of England, and I say, Mother Country with a great deal of pride, because it is. The window garden which exists there we are going to follow in this country, notably in Buffalo, Philadelphia, and other large cities; also the commercial stores have put in window boxes, just because of the suggestion of beauty.

To produce a citizenship that is going to turn naturally to the development of the beautiful about our homes, we must educate the children along these lines, and we can do so in no better way than through our public schools, and through municipal authorities, providing gardens, preferably vegetable gardens, and by the generosity of citizens, who turn over the use of their vacant property to the children. When the ground has been plowed you will see such a transformation as the one in the picture on the screen. In just one season that lot I showed you was transformed to this. The property was divided up among the children and prizes awarded at the end of the season for the best results obtained. I do not know whether Toronto has offered prizes—I inferred not. Try it some season, or in the other towns you represent; offer prizes and have a committee appointed. You will find citizens who will be glad to give subscriptions for such an object.

Miss Miller is the only curator in America. She is employed by the City of Cleveland to maintain Children's Gardens, and during the summer teaches hundreds of thousands the art of agriculture.

Here you see some of the products of those gardens, and I believe these young agriculturists have a good chance to grow up on the farm as bright and very happy men. All this work with the children our Association, which is engaged entirely in the physical development of cities, believes is going to result in the making of such men and women, that we are not going to have a bad citizen some years hence.

And when the children have got through with the gardens transfer them to the playgrounds, where they may have a director who will tell them how to play, how to make the best use of their legs and arms, how to breathe. Boys in the country do not have to be taught how to play.

Beginning with the development of the home, our activity should turn as individuals, or as organized societies, to the general development at large, and nothing contributes so much to the beauty of a city as its streets, the way in which boulevards are laid out, the extent to which trees are planted and cared for. We quite often have a burst of enthusiasm and plant trees, but forget that they need very tender care.

It must be said to the credit of Buffalo that they have solved there to a very creditable degree the proper width of sidewalks, particularly in the residential districts. You can tell from this picture that they have a narrow sidewalk, easily accommodating the traffic, and still leaving opportunity, as the years go by, of widening them.

Have you streets in Canada like this? Well, I presume if you have not you did have them only a few years ago, but you realized it was a bad condition and you effected changes similar to this. The initial expense of taxation is surely offset by the increased value of the adjoining property.

Here is a suggestion in some of the rural districts for the treatment of your street car lines. Why give them the middle of the thoroughfare? Put them on the side, an example set by a good many cities in the East.

In the development of our cities we must not forget that we make beautiful the surroundings of some of our manufacturing plants, and here, again, business men are finding that the more they make the factory surroundings pleasant, to that extent are they increasing the value of their property, the development of the city that they are making their money in, and the happiness of their employes.

There is a little city in North Carolina, the city of Biltmore, which is probably one of the finest examples of a properly-made city in this country. Of course there were millions of dollars at the command of the builder of the city. I am showing you a few pictures because we have in Biltmore a departure from the old-fashioned methods. Space is allowed for plenty of grass plots and everyone is encouraged to decorate their homes. And the churches, dedicated to the service of God, are properly adorned on their exterior and made beautiful in the interior. It is to the credit of the church-going people that they are recognizing that a little green grass makes the churches more attractive.

This view of the Post Office of the City of Biltmore shows that it answers the purpose, even if it is beautiful, and I do not think that the most practical of men would say that this is too much of a recognition of the æsthetic.

Roland Park, a suburb of Baltimore, is another example of the wisdom of calling in the assistance of expert aid in laying out the district.

The municipal authorities of Roland Park have said, "We do not want street litter, and we have invited the men and women to throw the street litter into receptacles." There is no street litter in Roland Park, because the city authorities see to it that these receptacles are emptied. This is a suggestion; you should arouse your people to buy some receptacle for the collection of street litter. These little things lead up to big ones. That can is not particularly beautiful, but it suggests cleanliness, and we know that cleanliness is said to be next to godliness.

This is a triangle in the city of Los Angeles. Nobody seemed to know who owned it, but some women in that town said, "Let us make that triangle look as it ought to," and this is what they did with it. Every city has opportunities for such as this.

There are opportunities for men such as you, engaged in Horticulture, to contribute to the pleasure and happiness of your people by beautifying as you see here,—the training of the beautiful Morning Glory around that lamp post. Now

there may be some business men who will say "That is girls' play": but we have combined the practical with the beautiful by the training of these vines.

These are not visions, they are not dreams; they are taken from life as you might find them in that beautiful country which we like to read about, which many of us have never visited, in Southern California.

There are always possibilities of improving some of our thoroughfares by the placing of water tanks for horses and other animals. You agree that this is a dignified looking tank, and that the horse itself is not a bad looking horse. Some generous donor probably gave that to the city. I wish every city were as fortunate as the City of New York, where, every year, probably a dozen men donate drinking fountains and submit plans which are really not suitable from an artistic standpoint. The plan goes before a Committee, and they say "Now, my dear friend, we appreciate your gift, but we would suggest that you exchange your plan for this." The result is that New York has probably a hundred new drinking fountains of suitable designs.

The attention that has been given to our street lights is one of the most encouraging signs. I was glad to learn that Toronto has also been giving attention to this matter. These lights have shown to a very remarkable degree the decorative effects of street lights. They contribute to the good appearance of the street and to the brilliancy at night.

Speaking about telegraph posts, we meet a problem of our cities, which ought not to be one. And that brings us naturally to the subject of tree butchery. All of you are much better able to talk of pruning than I am likely to be, and know of the destruction caused in most cases by the erection of the telegraph post. Compare that first picture with this beautiful avenue of horse chestnuts! How much the latter is to be preferred.

Some of the views show trees out in country districts. These are locusts chopped for telegraph posts. I want to say on behalf of the owners that I do not think they are responsible for the butchery. The foremen of the telegraph company simply go out and hack away, and we who are sensitive can well afford to imagine that that tree, as it was struck in this way, may have suffered the same feelings as we suffer when we are cut by the surgeon's knife. When you find a telegraph or telephone foreman about to cut a tree, call up the general offices to send up a man who will stop the destruction. When we stop to think of the care and trouble involved in growing a tree, why not guard it with at least a little of the care with which we guard human life?

The next view tells its own story—a tree as God made it; a tree as man improved it. With municipal control the trees may stay as God made them. If municipal control will help you I recommend you to secure it by all means. Chop off the tail of your dog if you must, and shear his ears if you will, but never, never mutilate a tree.

Indianapolis is a city which has seen the light and has decided to proceed along ordinary lines. They have no river, only a creek; they retained a landscape architect, and this first picture shows the conditions that met his attention twenty months ago, while the second records the progress that has been made. Indianapolis has established a reputation for the building of reinforced concrete bridges, a type which may not be brought out in the old style iron bridge. I am going to show you a few of the bridges that Indianapolis has erected in its parks within the past twenty-four months. They have the property and have simply utilized what trees they had.

Speaking about the water front—we regard the city that has any kind of a water front as having a great responsibility. Toronto has a water front, but I do not know what use you have made of it. Have you given it over to commerce? Have you as a capital city done anything to improve its appearance? The city of Amsterdam has erected bridges and buildings that will be lasting, and down in one of the South American countries they are giving us lessons that we need to follow, and have set us a very wonderful pace. Compare this harbor at Rio Janeiro with the harbor in New York City! Millions of dollars have been spent there and commerce benefited.

I might tell you of one of the State capitals of Wisconsin, for instance, where they have kept very close record for many years past of the expenditures, and of the constantly increased value of the property near these improvements; and, while there has been an increase of taxes, the increase of receipts caused by the increased value of the land has more than offset that increase; so do not hesitate sometimes to load yourself down with big bond issues.

The city of Harrisburg has done great things. Their greatest work was in saving to themselves the beautiful River of Susquehanna. They have made beautiful a strip of some two or three miles along the river, which eight years ago was a disgrace to any city, and they bonded themselves at that time for $500,000, and have been so well satisfied that recently they bonded themselves for another sum.

Just to show that Harrisburg is not ideal in every way, here is one of the ways they have neglected a water front, surely contributing to unhealthful conditions.

Memphis, on the banks of the Mississippi River, was satisfied to let a condition like that exist until a few years ago, when they changed it and made a park of it. I trust that if there are any vacant properties along your water front that can be saved you will do it, because you must remember that this is your capital city.

To come back to one of the bridges of Indianapolis: They were not satisfied to build a beautiful bridge alone—they wanted the surroundings to conform to the bridge, and this is the effect produced. It should be said that there is a great advertising value to Indianapolis in the possession of such bridges. People go there, see them, and come away and talk about them, and eventually attention is attracted to the city. How much better to be attracted by bridges than by good beer or a fine line of tobacco! Indianapolis may look for increased development. The census seems to demonstrate that those cities who devote themselves to the betterment of the conditions and surroundings of the people are the ones to increase their population. It is simply necessary to state that Cleveland has passed Pittsburgh, and when we speak of Pittsburgh we always think of smoke. But Pittsburgh has wakened up, and some day it will be only a memory that Pittsburgh was distinguished for its smoke.

Hartford wanted something to be an inspiration, and without any hesitation at all spent three million dollars for that kind of bridge. Is it not wise to erect such a permanent improvement? So will this bridge in Dayton, Ohio, be an inspiration to people who pass over it every day. Dayton municipal authorities recently employed experts to tell them how to proceed, and immediately the expert thought it worth while to put a row of flowers on that bridge.

Speaking about city approaches, don't you think it is a great deal more pleasant to alight from a train at a station like this one in Massachusetts? As Horticulturists, you will be pleased to know that the railway company gave to each of their station agents a small sum of money, $7.50, and told them to get the very best re-

sults in the planting of flowers, for which they offered a prize. This station agent thought it worth while to take some of his leisure time, when he was not selling tickets, to compete for the prize, and he put his energy together with his $7.50 in producing all these results.

I am going to show you a few billboard pictures, because in the few hours I have been in Toronto I note you have a few billboards. They are a menace to public health, and they are a menace to good morals.

Here are billboards on two sides of a corner. It is evident that they very often create a rendezvous for boys, drunks and undesirables.

That is a picture as a good woman in the States found it. She could not see the river because of these billboards, and she resented it. She was able to bring such pressure on the advertising company that they took the boards down.

There ought to be laws regulating billboards. Unfortunately we are unable to get laws that will stand the constitutional test. Somehow the billboard men have been successful in their contention that they have a right to put billboards where they want them. I am sure that this audience will agree with me that they ought to be eliminated from our streets, and I urge you to use your efforts, make an appeal to the advertising companies and to the owners of the property. You have confronting you a station in Toronto, just as most other cities have. Here I come into your city and want a beautiful impression of Toronto. The first thing I bump into is billboards, and I pass more billboards, and leave the city with the idea that here you have the same old billboard nuisance.

There are other kinds of advertising which we believe are a great deal better. I was brought up in the newspaper business, and I believe the kind of advertising that pays will be through the newspapers and magazines.

If I am not trespassing too much on your time I will take a few minutes to speak about flies. Only last night you had a distinguished doctor here who delivered an entire evening's address devoted to the common house-fly, which we are calling the "typhoid fly." Getting rid of the fly in the house is a very simple proposition, but it is the fly in its breeding place that we have got to stop—you have got to check him before he can fly. It has been thoroughly demonstrated that the fly carries disease germs. We believe it is properly within the province of the American Civic Association to fight the fly, because that means cleaning up property. In the summer season, every few days one fly is responsible for 120 flies. In four weeks the number climbs up into the millions, and so in your civic work pick up the club, as the people in all parts of the world are doing, and slay the house-fly.

Booklets have been given out by a great many of the States, in which several suggestions are noted for getting rid of flies. They are disease carriers, live and breathe in all kinds of filth, and in this connection I want to show you some pictures which give in detail the life history and habits of the fly. In one scene it is seen eating off a dead fish, from there it goes to the sugar, and then to the cuspidor, and then on to the nipple of the baby's bottle, and we know where the nipple goes.

Rev. A. H. Scott: If we had a little more time at our disposal there would be a disposition on the part of our members and friends who are with us to-night to ask a great many questions, but perhaps the hour has gone so far that there will be no questions. Before we separate I desire to move, in a general way, that the Ontario Horticultural Association express its deep acknowledgment of indebtedness to the Ministers of the Crown, and the other gentlemen, with special reference to our visitor from the United States, for their contributions to this evening's programme. Before I sit down I would like to call the attention of the Minister of Agriculture, whom we welcomed to the chair, his associate, the Provincial Treas-

urer, as well as the Minister of Public Works, as representing the Government here, to a resolution that was passed in this room this afternoon regarding the circulation of the Report that will be issued in a little while from the Horticultural Branch of the Department of Agriculture. We have had occasion in the past three years to make complimentary remarks, and to hear complimentary remarks made about the appearance and the work of the Ontario Horticultural Association's Report, that goes out to the country, and the motion that was passed to-day was in the form of a request to the Minister of Agriculture, who has charge of this Department, that sufficient Reports be printed so that every member of our Horticultural Societies in Ontario would receive a copy, and if the gentlemen representing the Government would be so good as to comply with that request we could help them in carrying out the suggestion they have made to us.

A Summer Cottage on the Tay. Photo by Rev. A. H. Scott

W. B. Burgoyne: I have much pleasure in seconding the resolution. The evening has been a profitable one, especially the address, illustrated as it was by Mr. Watrous. We have had Mr. McFarland with us before, and when we learned that Mr. Watrous was to represent the American Civic Association at this time I felt sure that we should thoroughly enjoy, and be very much benefited by, his address.

You have all heard the resolution, and there is no doubt about this being carried. We have got one of the most powerful arguments, when we approach the Minister, from the fact that we have heard to-night most valuable information, which we would like all our members to have the pleasure of reading in our next Report.

ELECTION OF OFFICERS FOR 1911.

The election of officers took place, and resulted as given on page 6. During the election the following point was discussed:

H. J. CLARK: Would it not be better to divide the districts up a little differently to what they are at the present time? In some cases here they cover seven counties. In my own district we have two of the largest counties in the Province: this district is entirely too large for any Director to supervise, and, if we could divide them up a little more, the Directors would, probably, do better work than at the present time.

THE PRESIDENT: I may say that in arranging this division of districts the Directors had in their mind not so much the extent of the territory as the number of Societies in each district. Our Constitution provides that there shall be seven Directors; any change in the number of Directors would have to be made by one year's Notice of Motion, and we can then rearrange to suit the wish of the meeting. If you will take the districts you will find they are pretty evenly balanced, as near as we could do it, but it would certainly lead to better supervision of the districts if there were more Directors. If you would like to give a notice of motion then it can come up next year.

The following notice of motion was then given:

Moved by Henry Foreman, Collingwood, seconded by J. H. Bennett, Barrie: "That the Board of Directors take into their consideration the advisability of re-dividing the several districts as at present, with a view of increasing the number of districts; also provide for a proportionate increase in the number of Directors, and that authority be given to introduce such amendment to the Rules and Regulations as is necessary."

DISCUSSION OF THE WORK OF SOCIETIES.

REV. A. H. SCOTT: Our attention has been called here to two important meetings that are to be held during the coming twelve months, both of them to be held in all probability at Tampa, Florida, the one the American Pomological Society, and the other the Society for the advancement of Horticultural Science.

It has been intimated to us further that the President of our Ontario Horticultural Association intends to be present in his personal capacity, and at his personal expense, at these two meetings. It seems to me it would be well if at these two important national gatherings our Horticultural Society should be represented, and inasmuch as our President is going there at any rate, I beg to move that the President of the Ontario Horticultural Association be asked at this meeting to represent the Province of Ontario. Carried.

W. M. KEITH: Yesterday afternoon we had the pleasure of listening to a delegate from the American Civic Association. I think that it is only fitting that this Association should return the compliment from year to year, and I have much pleasure in moving that the Rev. A. H. Scott be a delegate from this Association to the American Civic Association. As transpired yesterday, the expense of such a delegate has been partially defrayed by the local Society sending the delegate. I may say that I am a native from the County of Lanark, and know the town of Perth very well where Mr. Scott lives, and I have no doubt that the Perth Society would not be wanting in this particular. I have great pleasure, therefore, in moving that Mr. Scott be a delegate. Carried.

J. P. JAFFRAY: I move that Mr. J. Lockie Wilson be the other representative. I do not know that we can send any better man for that purpose. Carried.

REPORT FROM DISTRICT NO. 1.

F. B. Bowden, Vankleek Hill.

As your representative from District No. 1, I beg to report favorable progress in this section of Ontario for 1910. The Society at the Capital, through our President, Mr. R. B. Whyte, reports progress in the channels of former work. An innovation this year was the holding of monthly shows all day instead of in the evening only, but it was not considered a success, and, next year, evening sessions only will be held, except at the Rose Show to be held in June. Radical changes are being discussed for next year, and under the direction of our worthy President, if entered on, will no doubt be successfully carried out.

Perth, through our First Vice-President, Rev. A. H. Scott, reports progress, and he has recently been assisting the Smith's Falls Society. The latter organization has been particularly successful in its work on the Town "Park," which it reclaimed from waste land during the last ten years, and this year a landscape artist laid it out, and during the coming year about $500 will be expended through the Society; their labors in this work have met with great success. Their Premium List for 1911 shows that in this line alone the Society spends more than the entire membership fee, and each member also receives a copy of the *Canadian Horticulturist.*

Vankleek Hill Society has had a successful year, and we are pleased to report a number of our French citizens joining our Society. We also wish to acknowledge the kind assistance of Professor Blair, of Ste. Anne de Bellevue College, Que., in consenting to act as judge of lawns, gardens and exhibits at our Show. The lawns and gardens, while not up to the standard of other societies in this district, have shown marked improvement in the last two years.

REPORT FROM DISTRICT NO. 2.

W. Jeffers Diamond, Belleville.

I have endeavored by personal request, as the Director of my District, to get the reports from the societies of the special work done for the past year. I have succeeded partially. From those received, the evidence is that good work is being accomplished along, at least, some of the lines required by the Department. I presume that those who have not reported to me have considered it not to be necessary to do so, owing to having sent in the Society's Annual Report to the Department.

The Belleville Horticultural Society has, during the year, extended its work and usefulness, and, I believe, to the advantage of the citizens generally. Some 1,500 packages of aster seeds were put up and distributed to the school children; window boxes filled with plants were placed in the different ward schools; the two public parks were beautified by filling all beds with flowers and plants; in September a Children's Flower Show was held in the several ward schools and prizes, three in number, in each division awarded, also a special prize for the best bouquet from flowers grown by exhibitor. The prizes consisted of over 3,000 tulip bulbs. The Society was pleased with the results, and the children enjoyed the half holiday, and were made happy.

We consider it wise in our Society not to make an exception in our schools, that is, we start with the smallest child. We give three prizes in each division, and you would be astonished at the effect it had upon the school children of tender years, of some not more than five years old and up to fourteen. It seemed to us that we should not make an exception, but give prizes to each division, and have a general prize for the whole school.

Instead of having a Flower Show in one place we had it in each school, and it seemed to our Society the most interesting part of our work, with the exception of keeping up the parks and other places of civic improvement.

I went to Picton, in Prince Edward County, where they generally have a first-class show; it is a splendid fruit district and has the best flower display. The Bay of Quinte can show the best apples of any place, I think, in Ontario, and they have a most enthusiastic man as Secretary. He has on his letter paper a special cut, and I will just hand in his report, which speaks for itself.

I have attached to this report the following reports from the Secretaries of Picton, Cobourg, Lindsay, Peterboro and Stirling Societies, all that I have received.

PICTON SOCIETY: *Walter T. Ross, Secretary.*

The interest taken in our work by the Mayor of this town is shown by his again offering this year for the best kept lawns two handsome clocks, the same as last year, the matter being put in the hands of our Society. We made the usual distribution of plants and bulbs in the spring and fall, which seem to have given entire satisfaction.

The supplying of the *Canadian Horticulturist* to each member was taken up, and it was suggested that it be left optional with the members, but as it was shown that the magazine was of value in the cultivation of flowers, it was decided that the Society subscribe for it, as was done last year. A resolution was adopted, drawing the attention of the publishers of the magazine to the poultry department, which has not been written up of late.

The matter of lawn prizes and beautifying the different spots in the town was left to the Directors."

COBOURG SOCIETY: *Arthur B. Roberts, Secretary.*

We delivered to our members last spring perennials or flowers suitable for pots, boxes, and other ornaments to the amount of $78.75. Again, in the fall, we supplied them with hyacinths, tulips, etc., to the amount of $26.25, together with the "Canadian Horticulturist."

Our "Look-out Committee" were successful in drawing attention to the several old cemeteries in our town, and through their efforts they have been looked after and a great change has been effected.

Their attention was brought to bear on the Council of this Town regarding the trees in our Park, which were decaying, and we are pleased to say that the Council have had experts here to cut out all dead wood and fill up the cavities, which I trust will preserve them for a long time.

We have for years been trying to persuade the Telephone Company to remove their poles from our front street, and are pleased to report that we have made such an impression on the minds of the Bell Company that within the next six months all poles will probably have disappeared.

Our Lake Front has, in the past year, received attention from our City Fathers, and many unsightly objects and ungainly trees have been pruned or removed, making a vast improvement to its general appearance.

LINDSAY SOCIETY: *F. J. Frampton, Secretary.*

While the Lindsay Horticultural Society has done no special work during the past year, it has been carrying on an agitation in our town in regard to our shade trees, which needed some attention as to trimming some of the unsightly branches. We have induced our Town Council to do something along this line, but there is more to do yet. We have also been quietly trying to get our people and children to refrain from taking short cuts across corners of lawns and across our little park. We find it difficult to break this habit.

During the past year we have distributed 360 first-class hyacinth bulbs from Holland, and 90 azaleas, costing us $69. As regards literature, we have spent $49.06.

Tulip House, Dale's Greenhouses, Brampton.

STIRLING SOCIETY: *G. G. Thrasher, Secretary.*

During the past year our Society directed its efforts to the beautifying of the Park given to the Horticultural Society by the Corporation, which was a splendid work, and we anticipate now building a wall about the lower corner and levelling the whole Park, so that it will be something of interest to any one who wishes to know what our Society has done. The Park is situated at the corner of Edward and Victoria streets. Our Society also offered a prize for the best kept lawn in the village, and we had a number of competitors; one especially, J. W. Haight, had a very pretty and well-kept lawn.

PETERBOROUGH SOCIETY: *H. L. Beal, Secretary.*

Our Horticultural Society distributed during the past year the following: 3,000 Tuberous Rooted Begonias, 2,000 Von Sion Daffodils, 1,000 Hyacinths, and one year's subscription to the *Canadian Horticulturist.*

REPORT FROM DISTRICT No. 3.

MISS M. E. BLACKLOCK, TORONTO.

There are eight Horticultural Societies in this District, viz.: Toronto, Barrie, Whitby, Oshawa, Newmarket, Collingwood, Midland and Brampton. Reports were received from Toronto, Barrie and Whitby.

TORONTO SOCIETY: *Chas. E. Chambers, Secretary.*

"Beautify Toronto." This, the watch-word of the Toronto Horticultural Society for this year, has worked wonders in showing the citizens and the various municipal officials and organizations that the members of this Society, busy people most of them, are really philanthropists, expending their energy, time and money, as far as they are able, in beautifying this city, and thereby bettering the lives of all the people in it. The chief problems to be met here are the apathy and materialism of the native born, and the poverty and ignorance of the foreign immigrants.

At the regular monthly meetings of the Society, lectures and addresses were given by Mr. Elgin Schoff on "Yukon Flowers"; by Miss Louise Klein Miller, Curator of School Gardens, Cleveland, Ohio, on "School Gardens," illustrated; by Mr. E. F. Collins on "House Plants and their Treatment"; by Mr. Abraham Knechtel, Inspector of Dominion Forest Reserves, on "The Forests of Canada," illustrated; by Mr. E. F. Collins on "Spring Gardening Operations"; by Mr. J. McP. Ross on "Insect Pests"; and by Messrs. Thos. Manton and E. F. Collins on seasonable garden work. Members were requested to ask questions and much good discussion followed.

The Society donated a Gold Medal for the best vase of carnations at the Annual Carnation Show, held in St. George's Hall, February 18th.

In the spring, a Committee on Membership was appointed, and a circular, stating the policy of the Society for the summer, was printed and distributed to those who should have been members, but were not. Several members also printed, signed and distributed special circulars urging their friends to become members. As the result of a strong personal canvass, the membership has increased from 300 to 820.

A Year Book was printed and distributed to the members, stating the objects of the Society and giving the Constitution and By-Laws, list of officers and members, prize list, papers read, some good photographs, list of subscriptions, etc., and forming a handy guide in matters horticultural.

To encourage planting in front of the houses in many districts where it has been neglected, 38 prizes for flower beds, 34 for window boxes, 25 for climbing roses, and 30 for Virginia creepers, all donated by 13 members of the Society, were awarded in fourteen city blocks. A bronze medal was also given in each block

for the premises having the best general appearance. Members of the Society, deputed for the purpose, called upon all the residents in the districts chosen, told them of this Street Improvement Competition and urged them to do something. Experts from the City Parks Department dropped in soon after, stirring up the neglectful and directing the enthusiasts. Having gained the confidence of the people along these lines this year, the Society expects that this work will prosper enormously in the future.

A considerable sum, donated by a member, was spent in planting flowers, shrubs, etc., in front of the Home for Incurable Children. This is but a beginning of the Society's programme for the decoration of hospital grounds.

The Society planted extensive flower beds and vines around the East Toronto Y.M.C.A. Building at the intersection of the two leading business streets of this suburb.

The President prepared a plan with notes for the laying out and care of children's gardens. This the Board of Education had printed and distributed to the children, thus making a beginning of systematic gardening for children at the Public Schools. Prizes were awarded for the best School Gardens cared for by the children. The Society has also assisted the home gardens scheme of the Public School authorities by awarding a bronze medal to the boy or girl, one in each school, who has the best garden.

Through the subscriptions of a foreign friend, the Society has made a beginning in the decoration of back premises by awarding prizes in one of our City Blocks for the best decorated back-yard fences.

Flower seeds were distributed to the Jewish Mission on Teraulay Street. These the children planted, mostly in pots and window-boxes, and even, in the case of Morning Glories and other vines, in cellar windows, for there are very few back-yards or other ground for gardens in this neighborhood. At a Flower Service held at the Mission toward the end of the season ninety per cent. of the children brought flowers, those who had been successful with the seed sharing up somewhat with those whose plants had died.

The Norway Branch of the Society contributed 35 members to our roll, and was enabled, by reason of the support given by this organization, to hold a very successful Fall Exhibition of Flowers, Fruits and Vegetables. This branch also took a most active part in the "Street Improvement Competition" in their district. Owing to the rapid growth of the city, this Society may have to establish other branches in the newer districts in order the earlier to get at the people who most need help and encouragement along horticultural lines.

Four free monthly flower shows are held, the first in St. George's Hall and the others in a large tent in the Allan Gardens. The great success of the last three shows has demonstrated to us that the tent is the best place for our shows, even in wet weather. All flowers are given to the hospitals at the close of each exhibition. The prizes for the flowers were donated by the members. There were 256 entries in the floral classes, 31 in the fruit classes and 84 in the vegetable classes. Many of the rarer varieties where shown in tulips, narcissus, primroses and polyanthus, lilacs, columbines, iris, pæonies, sweet peas, delphiniums, phlox, gladioli and dahlias. The exhibition of out-door roses was the best ever seen here, and would have won prizes even in the southern rose shows. The City Parks Department and the various nurserymen, seedsmen and professionals added to the beauty of the shows and the education of the public by sending flowers for exhibition, but not for competition. The exhibitions amply repaid the time and trouble spent

on them, as they attracted the citizens in great crowds, awakening interest in horticulture and helped to bring members into the society.

But, possibly, the strongest evidence of our advance in horticulture was the winning by this Society of the Silver Cup, donated at last year's Convention by the St. Catharines Horticultural Society.

Several citizens with large grounds invited the members and friends of the Society to visit the gardens when special flowers were in bloom. The members were also urged to get the public to visit the flower beds in the various parks, where some thousands of varieties of plants could be seen, many of them new, most of them rare, and all plainly labeled. The educational value of such inspections has been very great.

A small Botanical Garden has been started by the University of Toronto in connection with the Department of Botany on the east side of Queen's Park. Some members of the Society and the Parks Department have made donation plants.

That the Society is a strong force in our city life is shown by the fact that we have a representative on the Industrial Exhibition Association and two representatives on the Guild of Civic Art, while one of our members has recently been appointed to an important committee of the Board of Trade because of his untiring efforts to "Beautify Toronto."

BARRIE SOCIETY: *J. A. MacLaren, Secretary.*

The year 1910 has been the most successful in the history of our organization. It has prospered exceedingly in membership, finances, and enthusiasm in the work. Our membership for 1910 was 235, an advance of 55 over last year. Already we have 175 memberships paid for 1911.

Substantial prizes for lawns, boulevards, window boxes and flower beds were awarded; also special prizes for the best kept grounds around public buildings. The classes were divided into two parts—one for those employing labour, and the other for those doing the work themselves. A remarkable improvement is noticed throughout the town. Several streets have been transformed from end to end as regards boulevards and lawns, as a result of the enthusiastic work of our members. To assist in our town improvement work the Council granted $75.00.

This year we discontinued giving seeds to the children and holding a Children's Show, as we found that our efforts in this direction met with little appreciation or encouragement from pupils, teachers or parents.

Although the season was unfavorable here our Annual Flower Show was a great success, and the directors were gratified by the increased attendance, which they hope to double next year.

One of the important matters taken up by our Society this year was the agitation for a Park Commission, and a by-law is to be submitted by the Council in January.

A splendid spirit of unity, enthusiasm and progress permeates our membership. Its circle is ever widening with very great benefits to the municipality.

GEORGE VICKERS: As one of the delegates I would like to point out our experience in Barrie. We have tried and distributed seeds, in all between $50 and $60, but our efforts met with utter failure, and we discontinued for the season. We have resolved ourselves into a committee to look into the matter, and will try some other method next year. I do not know if our children are any worse than others in Ontario, but they do things which could not be commended. We sowed seeds, bought flowers, and so on, which were not appreciated.

I know of one way, and the only way, to get new members. Put the name down, put the $1 opposite, and go to them and demand the dollar. We have tried this with great success.

REPORT FROM DISTRICT NO. 6.

GEORGE W. TEBBS, HESPELER.

The good work of the Horticultural Societies of our district is still maintained, and they wish me, at the outset, as their representative, to thank the Government, through the Provincial Association, for the help rendered them, by giving additional financial support, which had been felt to be so essential to the proper maintenance of the work, especially during a period of normal expansion. I believe all of our Societies have co-operated in doing their work, systematically, thoroughly, and most certainly efficiently. My only regret is that one or two of the Societies in my district, that I was not able to personally visit, have not given me any information, in response to an urgent request sent to them, of the particulars of the work they have done, nor have they affiliated with this Association. It is not sufficient, if the co-operative character of the work is to be maintained, that only the barest information which will obtain from them the Government Grant should be supplied. In every other instance the Secretaries have been most courteous and painstaking in inviting me to their exhibitions and meetings, and in supplying me with information.

Brantford is still the largest Society in the district, although Galt is running them very close for premier honours.

This year Brantford has added extra beauty to their town by supplying 300 shrubs and 7,000 bulbs, through their members; besides educating their Society by means of two lectures, by Prof. Hutt and Miss Klein Miller, and supplying them with the *Canadian Horticulturist*. Mr. Brooks is still their indefatigable Secretary, and is worth his weight in gold. The competition in lawns, window boxes and gardens was very keen, and great enthusiasm has been aroused. The work will be doubled this year.

Elmira held a good show, with over 500 entries. Mr. Schierholtz, the Secretary, is to be congratulated on his work and for the publicity he gives in his newspaper, the Elmira *Advertiser*.

Galt is going ahead in horticulture as well as in most other good things. Under the oversight of the officers they have enlisted the assistance of quite a number of well-to-do people, who have not only joined the Society, but have donated large sums to beautify special flower beds at the Collegiate Institute and in the Parks. Unsightly poles have been removed in the Squares, and Galt is fast becoming a beautiful city. Their show was one of the best I visited, and much credit must be given to the enthusiastic members of the Galt Society. Mr. Jaffray, Vice-President of the Provincial Association, gives constant hints and advice through his newspaper, and means to make his Society second to none.

Guelph has a very flourishing Society. It was a great treat to me to visit them at their Annual Meeting, held under the presidency of Dr. Bethune, and to speak to the large audience present. Miss Rose, the Secretary, is indefatigable, and both in name and nature is in the right place. Their finances are flourishing. It is worthy of note that in connection with the Guelph Association, the Local Daughters of the Empire gave valuable prizes for essays to the Senior Grades of the Public Schools. The subject selected was "How to Make Guelph Beautiful."

Could not this be followed in other places?

I visited the Waterloo Show of the Local Society, on the invitation of the Secretary, and was able to compliment them highly on the splendid display at this their first Exhibition. It was held in ideal surroundings, in Waterloo Park, which is much more preferable to that of many of our Societies' poky, ill-ventilated, enclosed halls.

Hespeler has done noble work this year under the able control of President R. Davis and Secretary Birken, supported by a live and energetic Directorate.

The Flower Show by the pupils of the Public School was very admirable, and so close was the competition in every grade that a large addition to the Prize List had to be made.

Gardens were judged during the year as usual, with good results. The Hespeler Society have made it a prominent feature for some years past, and it has been most successful.

They believe that the Parks Commission could well be selected from the ranks of the Horticultural Society, and I fully agree with them.

From this brief account I think you will see that during the past years no better work has been done than that which has been accomplished by the energetic officers and members of 1910.

REPORT FROM DISTRICT NO. 7.

H. J. McKay, Windsor.

The growth of the Windsor and Sandwich Horticultural Society may be seen from the following:

Three years ago there were 202 members: last year there were 336 members: this year there are 454 members: also this year we have 169 flower beds in the city.

Spring Premiums for Members, 1910: Sweet Peas, Asters, Marigold, Nicotine, Pansies, Zinnias, and Salvia. Shrubs—Hydrangea, 1 Rose of Sharon, 1 High Bush Cranberry, 1 Lady Jack Lang Rose.

Spring 1910, Planting in Flower Beds in City: 25,500 Tulips, 3,000 Geraniums, 2,000 Cannas, Petunias, and other plants.

Fall Premiums for Members, 1910: 25 Paper White Narcissus, 10 Daffodils, 20 Tulips.

Fall Planting at City Hall, 1910, 5,000 Tulips: Fall Planting at Fire Hall, 1910, 2,000 Tulips.

Total Cash Receipts (including $545 for members), $1,689.43: Total Expenditures, $1,320.02: Balance in Bank, $369.41.

St. Thomas Society: *Z. Rowland, Secretary.*

Members for year 1910, 126: Expenditure, General, $275.58: Expenditure, Flower Show, $311.44: Total Expenditure, $587.02.

Springfield Society: *V. H. Chute, Secretary.*

The total number of members is fifty-five, and total expenditure to date is $105.58.

WALKERVILLE SOCIETY: *W. H. Smith, Secretary.*

Receipts.		*Expenditure.*	
Balance from last year	$108 76	Improvements to Grounds, Plants and Bulbs for Flower Beds	$111 88
Membership Fees	229 00	Premiums for Members	323 63
Bank Interest	3 36	General Expenses	28 87
Town Grant	75 00	Prizes, School Children	20 30
Government Grant	207 00	C. D. Brown (Sec', 1909)	25 00
Plants, Bulbs, etc., sold	107 61	Membership Ont. Hort. Society	2 00
	$730 73		$511 68
	$511 68		
Balance on hand	$219 05	Liabilities, Printing	$1 60
		Assets—Tools, Stationery, etc.	**$25 50**

Membership, 229, an increase of 51.

ROSES FOR ONTARIO.

W. G. MACKENDRICK, TORONTO.

When I was requested to read a paper on Roses at this Convention, my first inclination was to refuse, because I really know so little about what is a very large subject, and I am sufficiently posted to know that my experience only touches the edge of this subject. My second thought was that perhaps it might aid in helping along the good work of the Toronto Horticultural Society in their effort to "Beautify Toronto," and the larger field of beautifying Ontario, and I was consoled by the thought that perhaps only a few of you would know whether it was as poor a paper as I knew it was, so I accepted.

The National Flower of England has at this date thousands of named varieties in commerce. Roses of various kinds are found the world over. Many of the choice varieties grown come from far away India and Japan, and one can see various wild roses in our own favored land, from Vancouver in the West to Halifax in the East, and from Edmonton in the North, to the most Southern point in Ontario.

Where roses grow in their wild state, cultivated roses will grow, and I am optimist enough to believe that perhaps in my lifetime dozens of our cities, towns and villages in Ontario will be as fragrant with the sweet perfume of the Queen of Flowers as are the towns and villages in England each June, and throughout the summer.

The Rose Fever is just as catching as the measles, the mumps, or some of the other ailments which flourish in Ontario, and I would that I had the power to inoculate each of you with a touch of it; because once caught, like the old-fashioned ague, it is hard to shake off. If each of you in your gardens had a bed of a few dozen Hybrid Tea Roses, which would bloom from June until November, you would inoculate your circle of friends and neighbors with the laudable desire to do likewise, and the ball once started would, like the endless chain, continue forever.

USES FOR THE ROSE.

They can be used for general garden cultivation, and should be placed in beds (about forty inches wide) by themselves, and not mixed with herbaceous plants, shrubs or trees. Some of the dwarf polyanthus make ideal bedding roses as a

border in front of the higher varieties. Roses can be used as tall (6 ft.) weeping standards, though in Ontario these have to be buried in earth to come through our severe winters. Different varieties of the climbers can be grown on north, south, east and west walls or fences. They can be grown as dwarf or tall pillars: they can be grown for covering pergolas. The Wichurianas make an ideal covering for unsightly banks. They can be grown pegged down or bent over in semi-circles. Many of the varieties will make a splendid dwarf or tall hedge. Many roses make handsome bushes when grown on a lawn separately. They can also be grown in pots or in greenhouses for button-holes or table decoration. In short, one can hardly desire to grow a flower in a position where a suitable rose cannot be used or found for it.

At my summer home on Toronto Island, where the soil in our rose beds is quite unsuitable to get the best results in rose culture, we are experimenting with about seven hundred roses: sixty-five named climbing roses: about two hundred named Hybrid Teas: thirty Hybrid Remontant, and about thirty odds and ends, such as Rugosa, Polyanthas, Teas, Chinas, Sweet Briars, etc.

Hybrid Remontant.

Remontant means that this class blooms a second time (or once more). They are usually termed Hybrid Perpetual, but are not perpetual bloomers like the Hybrid Teas, Teas and Polyanthas, and the term is misleading, and should not be used by growers.

This is the class of rose usually grown in Ontario, because it is known to be hardy. They give an abundance of bloom at the end of June and the beginning of July, and about half of them bloom again in September.

If asked to suggest the best dozen suitable for gardens, I would say Frau Karl Druschki and Margaret Dickson for whites: Mrs. John Lang, Mrs. Sharman Crawford, Mrs. Cooker for light pinks: Alfred Colomb and Magna Charta for dark pinks: Captain Hayward, Ulrich Brunner and General Jacqueminot for light reds: Prince Camille de Rohan and Victor Hugo for dark reds.

Hybrid Teas.

These roses are a cross between the tender ever-blooming Teas and the hardy Hybrid Remontant and other roses, and were first introduced in 1868, with that favorite, La France, still one of the sweetest roses grown. They are practically continuously in bloom throughout the summer, and will stand our Ontario climate, as I have grown them for three or four years with few losses. Last year I lost only 2 per cent. of my stock, and each plant lost was a weakling to start with.

The blooms are more delicate and refined in form, many of them having the high pointed centre, as distinguished from the flat cabbage effect of most of the Hybrid Remontants. The colors range from the most delicate shades of peach, pink, soft yellow, to the deepest reds, oranges, etc. Most of this class have the sweet subtle fragrance of the Tea Roses. I look to this class of rose to be *the* rose of the future for Ontario, and I would like to see our Canadian nurserymen grow many of the new varieties of this class, so that we could get Canadian-grown stock in Toronto as well as that grown in Britain or on the Continent. Most growers in Britain and the Continent now catalogue from two to five times as many Hybrid Teas as Hybrid Remontants.

Extensive Private Greenhouses.

Photo by T. McVitty.

The Best Twelve Everblooming Hybrid Teas.

If asked to select the best twelve roses of this everblooming class I would be at a loss just which to choose, because, like a bevy of beautiful women, each has a special charm of her own, and like the gentler sex they possess as many moods and charms as there are hours in the day, and who is the man who can say that Caroline Testout is more handsome than Hon. Ina Bingham or Mrs. Peter Blair, and did he judge them in the early morning with the dew glistening on them, or when the sun was high in the heavens, or during that witching hour when the sun was just going down, when many things in our gardens look their best?

I have gone into the rose garden in the early morning when the dew was on each petal, leaf and tree; when the rising sun had awakened the birds to singing their lusty jubilant songs of June, and what a glorious sight meets the eye! A thousand blooms of roses of every color in the rainbow, besides many that the rainbow does not possess—indescribable in their beauty, with a fragrance which baffles description.

Is there any sight on this round earth more beautiful, more joyful and more uplifting when it meets the eye than a rose garden on such a morning? I have walked down the paths carefully noting each of the seven hundred bushes, picking the choicest bloom here and there, and comparing them one with the other, and I have declared that Betty is the sweetest, daintiest thing that ever grew, and have wondered how I could have thought yesterday that Mildred Grant surpassed her.

Entering the garden at high noon Betty's complexion does not look so ruddy. Mildred Grant has a dozen freckles on her glorious face of yestermorn, while Hon. Ina Bingham, a blushing beauty, deeply veined on her thick velvety pink petals, is the beauty of the hour.

At evening a walk along the same paths will show Helen Keller or Susanne Marie Rodocanachi, or some other charmer, which then surpasses the Hon. Ina Bingham.

This is, I think, one of the principal charms of a rose garden; you can walk through it morning, noon and evening, month after month, and never see it just as it looked on any other day, so you can see how hard it is for one who loves them all to specify the best twelve.

I can say, however, that Antoine Revoire, Caroline Testout, Dean Hole, Grand Duc A le Luxembourg, Gruss au Teplitz, La France, Madame Ravary, Madame Abel Chatenay, Etoile de France, Viscountess Folkestone, Theresa and Killarney will give splendid results in your garden. If you cannot get the ones you want locally, Alex. Dickson & Son, Newtownards, Ireland, is a satisfactory firm to buy from, and purchase dwarfs.

Climbing Roses.

These are as easily grown as tomatoes, potatoes or cauliflower, and this is the class of rose which every one should grow wherever there is a bare piece of fence, a stone pile, an old stump, a dead tree, a pergola, a veranda, the side of a house, a sloping bank or an overhanging wall that would look better covered with their rich shining green leaves, and, during their flowering season, with their masses of gorgeous flowers.

When you consider that for twenty-five cents one can get a good hardy climbing rose that our winters cannot kill, that will bloom the first year, and in three years will cover a wall or fence ten feet high and fifteen feet long, one wonders

why there are so many bare and unsightly spots even on the premises of members of the Horticultural Societies, and all over Ontario.

Cannot each of you picture in your mind now such a spot in your garden? Unless I am mistaken we all can. Let me now suggest that the best work you can do for your Horticultural Society is to cover that spot with a climbing rose of any of the following varieties, and the next year you can give half a dozen cuttings to half a dozen neighbors, and they will emulate your example, because these climbing roses are grown on their own roots, and the cuttings root readily in sandy soil. I have cuttings stuck in the ground September 22nd, 1909, which I dug up October, 1910, and which had three shoots six feet long, and they never got any attention during the year except a watering once in a while.

As there are only a couple of hundred different climbing roses in commerce, it is easier to choose a good twelve than among the Hybrid Teas. I would place Tausendchon, or a Thousand Beauties, at the head of the list; then Crimson Rambler, or Flower of Fairfield (which is colored like Crimson Rambler, but it blooms on new wood and flowers two or three times during the season), then Dorothy Perkins or Lady Gay, which is a deeper pink and more fragrant; then Debutante, which to me has the sweetest fragrance of any of the climbers I have grown. Reine Olga de Wurtemburg, a Hybrid Tea Climber, with brilliant scarlet flowers of the size and shape of Tausendchon, is a gem. Climbing Mrs. W. J. Grant (Hybrid Tea) will give several crops of bloom during the summer. Helene, a single flowered climber with a lavender tinge through it; Hiawatha, a brilliant red with white eye and large yellow stamens, is one of the most showy. White Dorothy, a sprout from Dorothy Perkins, and Gardenia, the best yellow Wichuriana, will make a dozen that will fill your waistcoat with pride every time you look at them during the summer.

One of the finest sights I saw in Toronto last summer was on West Roxborough Street, where half a dozen houses had Tausendchon, Dorothy Perkins and Crimson Rambler in bloom on their front verandahs. Just imagine what a beautiful spot Toronto would be if every house had its climbing rose over the door or verandah. M. H. Walsh, Woods Hole, Mass., has brought out many of the newer varieties which the English growers are cataloguing and growing.

How to Make a Bed.

Dig the ground 18 inches deep and put in one-third well-rotted cow manure, if you can get it. If the soil is very heavy clay dig in one-third sand and turn it twice. Plant Hybrid Tea Roses fifteen inches apart; Hybrid Remontants twenty-four inches in two rows, and a twenty-four inch grass walk between the forty-inch beds. The rose is a gross feeder, and will make away with large portions of well-rotted manure, bone meal, or liquid manure. Feed them well and you will get good results.

When to Plant.

November, in Toronto, is the best month to plant or transplant, as the wood is well ripened and the roots take hold and start off quicker than if planted in April, when most of my planting has been done. If you cannot plant in November, April, or even May will give splendid results and lots of flowers if two-year-old roses are purchased. If budded roses are planted place the joint from one to two inches below the surface and compact the soil firmly with the foot.

When to Prune Hybrid Teas and Hybrid Remontants.

When planting dwarf roses cut off any injured parts of roots and cut back the top to from three to seven inches above ground. The second year prune in the spring as soon as the buds begin to show. If you want good roses, cut them ruthlessly down to within a few inches of the ground, and just above an outside bud, as inside buds usually spoil the symmetry of the plant, and do not let the sun and air into the centre of the plant. The weaker the plant the harder it should be pruned.

Climbing Roses practically need little pruning, except to cut off the dead wood. After a main shoot of most of these climbers has bloomed for, say, two seasons, it is advisable to cut it off close to the main root, immediately after it has bloomed, so that a new shoot or two will be grown to take its place with fresh flowering wood to give the next season's flowers.

Labelling Roses.

Each variety should have a good permanent label of wood painted white, and the name legibly written with an indelible pencil and wired with good copper wire that will last for years. An ordinary wood label with ordinary wire will become weather-worn in one season, and the wire will rust off during the winter, and unless you have a plan of your rose bed you are at a loss to know what your roses are the next spring.

Enemies of the Rose.

Every Plant has its Enemies. Potatoes are troubled with the potato bug, cabbages with worms, radishes with the fly, and roses are not exempt from their pests. Aphis, mildew and black spot are the three we are bothered with among our roses. Nicotine will destroy the aphis. Sulphur dusted over the bushes every once in a while will settle the mildew. Bordeaux mixture applied to the roses and ground early in the spring is said to be good for black spot; also liver of sulphur through the season, though I have not tried the latter.

Wintering Roses.

I used to tie up each rose in the beds in a bundle of straw or bulrushes and heavily manure the beds. I tried one fall four beds without manure or straw, but drew the earth up around the stems of the roses from four to six inches, and they came through the winter in good shape. Since then I have not used manure, as it holds a soggy mass around the roots of the roses that winter better if they are kept dry and well drained. A little loose straw or strawy manure, just enough to keep the ground shaded so that it will not thaw and freeze off and on through the winter, would help the roots. This comparatively modern plan of earthing up roses four to six inches is a simple and excellent one, the non-conducting properties of this slight covering of earth are surprising in a very severe winter, when no sound wood is to be seen above the earth covering; beneath it the shoots will nearly always be found uninjured.

Climbing Roses.

I tie the stems of each plant in a bundle to the fence, a foot or two above the ground, and shade from the sun with a little straw, though some that are left quite exposed for years are in as good condition as those we tie up. Climbing roses that are planted or transplanted late in the fall should have straw tied to

them to keep off the hot suns in the spring, as the sun will evaporate the sap in the shoots before the feeding roots can get to work to replace this sap, and the stems shrivel up as a result.

In conclusion let me say that rose growing is the most delightful and beneficial of exercises. It chases the cobwebs out of the brain of the tired city worker; it helps keep the heart young, and once started it holds one's interest to the end. It is a game you can play at whether you are twenty-five or seventy-five years of age, and you can enjoy it so long as you have eyes to see or a nose to smell with.

"If you love your city, town or village; if you want to be helpful to yourself, your fellow citizen and to posterity, there is no better way of expressing it than to plant roses that will gladden the eye, brighten the lives and warm the hearts of your families, your friends and your fellow citizens, and those who will take our places as the years roll round."

F. Outram: After trying straw with which to tie up the branches, and every other way, I have succeeded best in taking something heavy enough to hold the branches down and cover with maple leaves—apple leaves are too heavy—and then sometimes I take some old bagging and cover with that, and leave well covered until quite late in the spring. My plan has proved very satisfactory and I never lost a single thing.

Prof. Hutt: No doubt the Hybrid Tea Roses are a most desirable class for the amateur's garden wherever great care is taken to protect them properly during the winter. The fact remains, however, that the Hybrid Perpetuals have been and will continue to be the most reliable for general cultivation, and I think we are safer in recommending these for general planting rather than the Hybrid Teas.

We have been making a test in our trial grounds at the College of about one hundred and fifty different kinds of hardy roses, most of them Hybrid Perpetuals, and I have prepared a list to present at this meeting in connection with the Report on Nomenclature, giving one-half dozen, one dozen and two dozen of what we have found to be the most desirable kinds in this test. This list will be found in the published report in connection with the Report of the Committee on Nomenclature.

REPORT OF COMMITTEE ON PLANT NOMENCLATURE.

Your Committee on Nomenclature begs to submit the following report:

The efforts of the Committee have been confined to the preparation of lists of varieties of four important flowers, viz.: Cannas, Lilies, Pæonies and Roses, which lists are submitted herewith. The Committee has not yet been able to enter on any extended work in the direction of a comprehensive field-test of varieties of plants and the elimination of duplicate names and of the poorer sorts from the lists, but it is hoped that in the not distant future a feasible scheme can be formulated for the carrying on of such work. In the meantime the lists submitted last year and as a part of this report, are recommended to all flower-loving citizens, as well worthy of careful consideration:

Cannas.

The following is a list of the best large flowering Cannas, twelve in number:

1. *Mrs. Kate Gray,* green foliage, flowers orange scarlet, overlaid with gold, 4 to 5 feet high.

2. *Florence Vaughan*, bright yellow with scarlet spots, green foliage, 4 feet high.

3. *Charles Henderson*, flowers crimson, foliage green, 2 to 3 feet high.

4. *Queen Charlotte*, green foliage, blooms orange scarlet with a broad band of yellow bordering the petals, 2 to 3 feet high.

5. *Express*, green foliage, musa like, flowers scarlet, 2 to 2½ feet, the best dwarf Canna.

6. *Ruben*, dark foliage, flowers ruby carmine, one of the best, 2 to 2½ feet high.

7. *Souvenir d'Antoine Crozy*, the same as Queen Charlotte, but with a narrow band of yellow round the petals.

8. *David Harum*, the darkest foliage, red blooms, 3 to 3½ feet high.

9. *Madame Crozy*, crimson scarlet, yellow edge, 3 feet high, green foliage.

10. *President Mayer*, 2 to 3 feet, dark foliage, dark red blooms, droops its panicle of bloom, otherwise one of the best.

11. *Gloriosa*, resembles Madame Crozy, but dwarfer; broader in the petals, green musa like foliage, and 2 to 2½ feet high.

12. *Mlle. Berat*, rosy carmine, 4 feet, green foliage.

The following are the best orchid flowering six Cannas:

1. *King Humbert*. Dark bronze foliage, blooms bright scarlet; the best in bloom and foliage.

2. *Burbank*. Light yellow flowers fading to white, green foliage; 4 to 5 feet high.

3. *Alamannia*. Scarlet with golden edge, green foliage; 4 to 5 feet high.

4. *Italia*. Bright red blooms with broad yellow band, green foliage; 4 to 5 feet high.

5. *America*. Reddish purple, bronze foliage, 4 feet.

6. *Professor Treub*. Foliage brown red, shaded dark green. Flowers scarlet striped salmon; about 4 feet high.

The Black Beauty and *Musifolia Cannas* should be added here for semi-tropical bedding.

Best Twelve Varieties of Lilies.

1. *Lilium auratum*. Gold-banded Lily. Japan. Half hardy. Height 2 to 4 feet. Flowers white dotted with purple, yellow bands; mid July to September.

2. *L. Candidum*. Bourbon Lily, Madonna Lily. South Europe, etc. Hardy. Height 3½ to 4½ feet. Flower white. July.

3. *L. Croceum*. Orange Lily. South Europe. Hardy. Height 3 to 5 feet. Flower bright orange spotted with black. June.

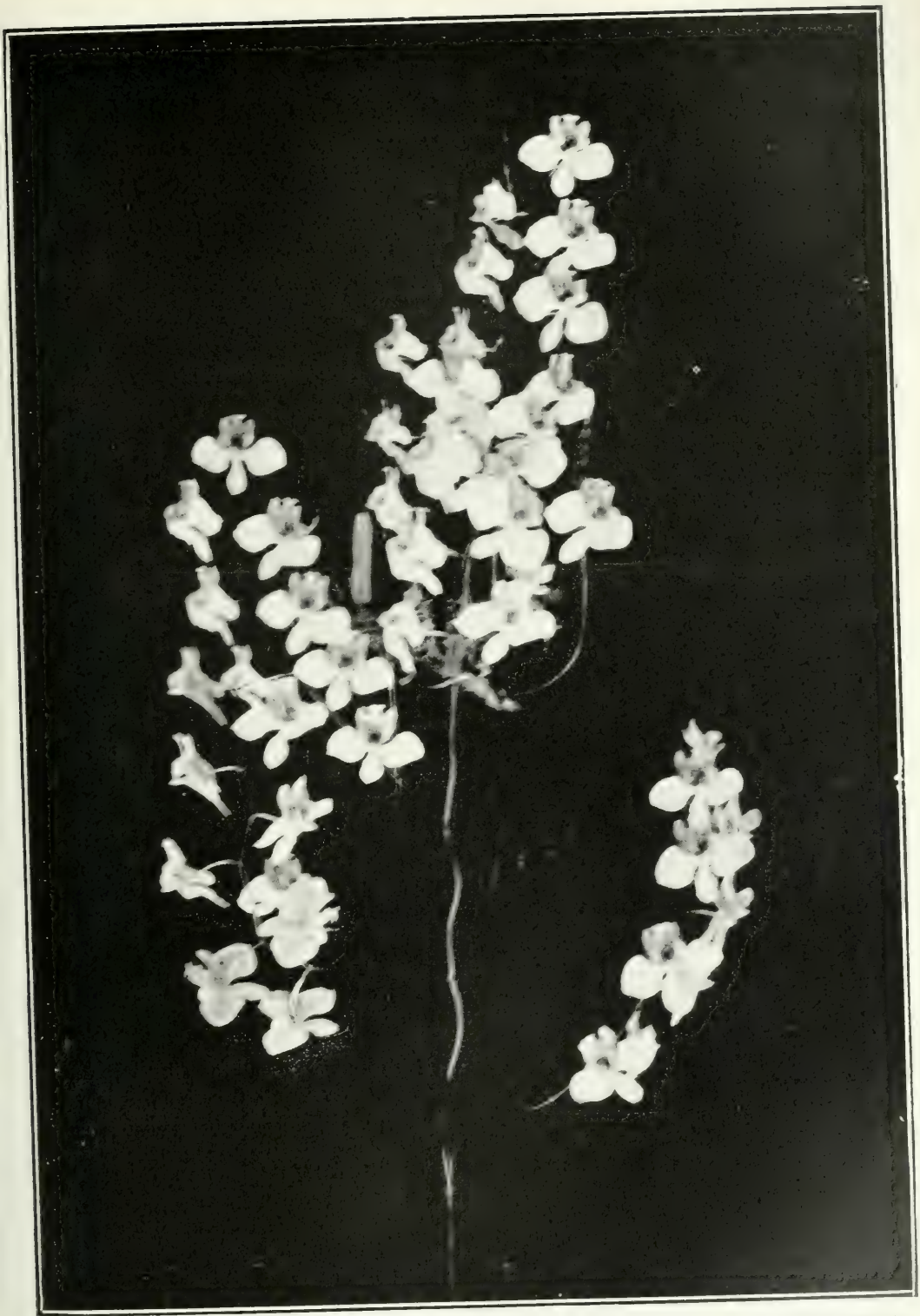
4. *L. elegans atrosanguineum*. Hardy. Height 12 to 15 inches. Flower deep but vivid red. July.

5. *L. elegans Wallacei*. Hardy. Height 6 to 12 inches. Flower apricot-orange spotted with black. Middle of August to early September.

6. *L. Henryi*. Hardy. Height 4 to 6 feet. Flower deep orange yellow with a few brown spots. August to September.

7. *L. longiflorum*. China and Japan. Half hardy. Height 2 to 3 feet. Flower white. Late July to early August.

8. *L. speciosum* and varieties. Half hardy. Height 2 to 3 feet. Flower white suffused and spotted with crimson. September.



Orchid Phalænopsis Schilleriana. Photo by T. McVity.

9. *L. superbum,* American Turk's Cap Lily. Eastern United States and Western Ontario. Hardy. Height 4½ to 7 feet. Flower bright reddish orange with dark spots; late June to middle of August.

10. *L. tenuifolium.* Siberian Coral Lily. Siberia. Hardy. Height 1 to 2 feet. Flower bright scarlet. June.

11. *L. testaceum,* Nankeen Lily. Garden origin. syn. *L. excelsum,* Hort. Hardy. Height 4 to 6 feet. Flower buff or apricot color. July.

12. *L. tigrinum.* Tiger Lily. China and Japan. Hardy. Height 2 to 4 feet. Flower deep orange spotted thickly with purplish black. Late July to September.

List of Twenty Herbaceous Paeonies Recommended for Culture in Canada.

1. *Paeony Tenuifolia, flora plena.* Very early; crimson.
2. *P. Officinalis, alba plena.* Very early; pure white.
3. *P. Rubra plena.* Very early; crimson.
4. *P. Albiflora, "Achille."* Early; shell pink.
5. *P. "Calot Mme."* Early; white.
6. *P. "Crousse Felix."* Mid-season; red.
7. *P. "Dubois Claire."* Pink.
8. *P. "Edulis Superba."* Early; violaceous pink.
9. *P. "Elie Mons. Jules."* Mid-season; flesh pink.
10. *P. "Festiva Maxima."* Early; white.
11. *P. "Fiancee La,"* single. Early; white with yellow centre.
12. *P. "Lamartine," syn. Gigantea.* Mid.; finest pink.
13. *P. "Nemours Duchesse de"* (Calot). Early; white.
14. *P. "Nord. Triomphe du."* Late mid; purplish pink, shading to fleshy pink.
15. *P. "Or Couronne d'."* Late; white with whitish reflex.
16. *P. "Rosiere La."* Mid-season; sulphurish white.
17. *P. "Rubra Superba"* (Richardson). Late; deep crimson.
18. *P. "Schroeder, Baroness."* Flesh, changing to white.
19. *P. "Umbellata rosea."* Very early; violet rose with narrow white petals in centre.
20. *"Verdier Eugène."* Late; hydrangea pink.

The Best of the Roses.

From among one hundred and fifty varieties under test at the Ontario Agricultural College, the following are selected as two dozen of the best hardy varieties for general planting. All who can should grow the whole list. Those who have room for only half a dozen should select those marked with a double star (**). The best dozen are included in those marked with single or double stars:

Alfred Colomb. Bright red, large, full, globular, free flowering, fragrant.

***Anna die Diesbach.* A beautiful shade of carmine, large, fragrant.

Baron de Bonstetten. Velvety blackish, crimson, large and full.

Baroness Rothschild. Pale rose, large, fine form.

***Capt. Hoguard.* Scarlet crimson, good form, fragrant, free flowering.

**Ella.* Flesh color, shaded rosy pink, globular form, flowering in large clusters.

Crested Moss. Pale rose, buds beautifully crested.

****Eugene Furst.** Velvety crimson shaded with deep crimson, large, full, fragrant; a vigorous growth.

****Frau Karl Druschki.** Snow white, very large, full, perfectly formed; superb, but no fragrance.

Franco Levet. Cherry red, medium size, very full, vigorous grower, few thorns.

****General Jacqueminot.** Brilliant crimson, not full, but large and very showy, fragrant, hardy, vigorous grower.

Her Majesty. Clear, satiny rose, very large, full and showy.

Jean Liabaud. Crimson maroon, illumined with scarlet; large, full fragrant.

****John Hopper.** Bright rose with carmine centre; large, full, fragrant; a profuse bloomer.

Jules Margottin. Bright cherry red, large, somewhat flat, double flowers, fragrant.

***Killarney.** A hybrid tea, which with a little winter protection may be grown outside. A flesh color shaded, white, suffused with pale pink, long pointed buds, very beautiful.

***Lady Helen Stewart.** Bright crimson shaded with scarlet, resembles somewhat General Jacqueminot.

Magna Charta. Bright rose, very large, full, fine, early in the season.

***Margaret Dickson.** White with pale flesh centre, large, full form, and good substance.

Mad. Plantier. Pure white, medium size, profuse blooming, very hardy.

Merveille de Lyon. White, centre slightly rosy-peach, large, full, cup-shaped.

Mrs. John Laing. Soft pink, very large, fine form, fragrant, free flowering.

Prince Camille de Rohan. Deep velvety crimson, large, full, fine form; one of the best of the very dark varieties.

***Ulrich Brunner.** Rich, glowing crimson, large, full, globular form, fragrant.

The following list includes some of widely different types, among which are the best climbing, shrubby and dwarf bedding varieties:—

Agnes Emily Carman. A rugosa hybrid obtained by crossing the pink rugosa, or Japanese rose, with Harrison's yellow. A hardy, handsome grower, with tough glossy dark foliage, and brilliant flowers about the shade of General Jacqueminot. Valuable for shrubbery planting.

Baby Rambler. A number of varieties of dwarf polyantha roses have been introduced as Baby Ramblers. Baby Dorothy is a choice new one, bearing a profusion of small brilliant pink flowers. Valuable for bedding.

Crimson Rambler. One of the hardiest and best known of the rambler roses. Grows strong canes from 10 to 20 feet long, and bears a profusion of clusters of very double small crimson flowers.

Dorothy Perkins. One of the Wichuriana roses, sometimes called the pink rambler. A hardy, vigorous grower producing canes from 10 to 20 feet long, and bearing a profusion of small, semi-double, shell-pink flowers. One of the best of the climbing roses.

Lady Penzance. One of Lord Penzance's hybrid sweet briars, vigorous grower. Produces beautiful single flowers of a soft copper tint with bright metallic lustre yellow at the base of the petals, very beautiful and valuable for shrubbery planting.

Persian Yellow. One of the old-fashioned Austrian roses, a hardy, vigorous grower, produces a wealth of rich golden yellow, double flowers. Worthy of a place among the shrubbery on any house grounds.

(Signed) H. L. Hutt.

List of the Best Roses.

Avoca, H.T. Crimson scarlet.
Betty, H.T. Coppery rose overspread with golden yellow.
Caroline Testout, H.T. Satin rose.
Charles J. Grahame, H.T. Dazzling orange crimson.
Colonel R. S. Williamson, H.T. Satiny white.
Commandant Felix Faure, H.P. Rich lake flushed crimson.
Countess of Gosford, H.T. Salmon pink, rose suffused, saffron yellow.
Dean Hole, H.T. Silvery carmine, shaded salmon.
Dr. J. Campbell Hall, H.T. Coral rose, suffused white.
Elizabeth Barnes, H.T. Satiny salmon rose.
Frau Lilla Routenstrauch, H.T.
General McArthur, H.T. Bright crimson.
Gladys Harkness, H.T. Deep salmon pink.
Gruss an Teplitz, H.T. Brightest scarlet crimson.
Harry Kirk, T. Deep sulphur yellow, passing to lighter.
J. B. Clark, H.T. Deep scarlet shaded blackish crimson.
John Ruskin, H.T. Bright rosy carmine.
Joseph Hill, H.T. Pink, salmon shaded.
Lady Ashtown, H.T. Very pale rose du Barri.
Lady Helen Vincent. Shell-pink reflex of petals blush.
Lady Meriel Bathurst, T. Golden yellow.
Lyon-Rose, H.T. Shrimp pink at ends of petals, centre coral red.
Madame Berard, T. Rich salmon tinted with rosy yellow.
Madame Joseph Combet, H.T. Creamy white.
Madame Wagram Comtesse de Turenne, H.T. Satiny rose shaded flesh.
Mildred Grant, H.T. Silvery white, shaded and bordered pink.
Mrs. Aaron Ward, H.T. Indian yellow, washed salmon rose.
Mrs. B. R. Cant, T. Deep rose, inner petals soft silvery rose.
Mrs. David Jardine, H.T. Bright rosy pink, shading to salmon.
Mrs. Harold Brocklebank, H.T. Creamy white, centre buff.
Mrs. W. J. Grant, H.T. Imperial pink.
Pharisaer, H.T. Rosy white shaded salmon.
Souvenir du President Carnot, H.T. Flesh shaded white.
Viscountess Folkestone, H.T. Creamy pink, centre salmon pink.
William Shean, H.T. Purest pink, petals shell shaped.
Paul Neyron, H.P. Deep rose.
Mrs. John Laing, H.P. Soft pink.
Marie Baumann, H.P. Vivid red.
Margaret Dickson, H.P. White, pale flesh centre.
Magna Charta, H.P. Bright rose.
Marchioness of Londonderry, H.P. Ivory white.
Louis Van Houtte, H.P. Red, shaded crimson.
Madame Gabriel Luizet, H.P. Light, silvery pink.
Lady Helen Stewart, H.P. Bright crimson, shaded scarlet.
John Hopper, H.P. Bright rose.
Gloire de Margottin, H.P. Dazzling red.
General Jacqueminot, H.P. Crimson scarlet.
Frau Karl Druschki, H.P. Snow white.
Francois Michelon, H.P. Deep rose.
Fisher Holmes, H.P. Deep crimson.

R. Cameron.

All of which is respectfully submitted,

(Signed) J. Cayers.

REPORT OF THE NOVELTY COMMITTEE. 1910.

The Novelty Committee has few novelties of 1910 to report upon, as not many strictly new plants of merit have come under the notice of the members of the Committee; but it is felt that part of the duty of the Novelty Committee is to report upon plants which, while not novelties in the strictest sense of the word, yet have either been introduced during comparatively recent years or are not generally known.

Grown by Parks Department, Toronto.

The following plants have been grown by the Parks Department, Toronto, Ont.:

Mimulus glutinosus, of California. Flowers usually buff colored; blooms nearly the whole year, and plant grows to from 4 to 5 feet high. Greenhouse shrub.

Nigella integrifolia is a new plant from South Africa, resembling the Hair-bell in plant and foliage and height of plant. Very pretty; probably not hardy. Flowers, blue, in August to fall.

Canarina campanulata. Greenhouse perennial, 3 to 4 feet; blooms large, yellowish-purple, drooping, terminating the branches.

Michauxia campanulata, 4 to 5 feet high; flowers large, white, tinged purple; plant upright; probably not hardy here, but will pay to grow from seeds annually.

Frankenia ericoides. Prostrate, hardy or half hardy, heath-like plant, 12 inches high, continuous bloomer; very pretty.

Richardia Nelsoni. Blooms light yellow, throat purple; leaves spotted with white.

Trachymene coerulea. A very pretty blue flowering annual from Australia; in bloom all summer from seeds; 18 inches high; very desirable.

Gerardia acuminata. 12 to 15 inches high; rose purple; flowers all summer; very desirable and distinct plant and bloom.

Campanula persicifolia var. Humosa. Semi-double flower, white, producing the largest flowers of any of this class; hardy.

Delphinium brunonianum. Musk Larkspur from Thibet; rare, having a strong, musky odour; one foot high.

Delphinium nudicaule. 12 to 18 inches high; red-coloured, blooms all summer; from California.

Hespris tristis. Night Scented Garden Rocket: flowers green, very sweet scented at night; should be grown on this account.

Rosa Tausendschon. Light pink when expanded; in very large clusters; the best of this class.

Tested by the Ontario Agricultural College, Guelph.

The following are notes of plants of merit tested at the Ontario Agricultural College, Guelph:

Geraniums.

E. H. Trego. Semi-double flower. Immense truss, but not very well formed. Color bright cerise scarlet. Vigorous habit of growth. A good variety for pot culture; does not succeed as a bedding plant.

Flamingo. Semi-double. Something like S. A. Nutt in color and habit, but will not supersede this well-known variety, as the truss is much smaller and not quite as deep in color. Very free flowering habit.

Mirador. Semi-double. Very large truss of bright reddish crimson flowers shaded magenta. Free flowering.

Miss Frances Perkins. Semi-double. A pleasing shade of pink, did not do very well as a bedding plant this season.

M. Anatole Rosdeur. Semi-double. A decided acquisition to the light pinks, better as a pot plant than as a bedding variety so far as tested.

Gladioli.

Black Eyed Beauty. Large, white, with blotch of violet shaded darker. An acquisition to the light and blotched type.

Dazzler. Bright vermilion red, with chocolate crimson blotch. Should be in every collection.

Annuals.

Calendula Trianon. The rich reddish brown markings on petals makes this an acceptable change among the Pot Marigolds.

Calendula Meteor. A deep orange with red shadings here and there. Distinct from older types.

CANDYTUFT. *Hyacinth flowered.* The immense long round spikes of pure white flowers, and the length of time they are in good condition, will make this variety of these old fashioned annuals a favorite with all flower lovers.

Coreopsis marmorata. The rich brown flowers of this variety, with the beautiful blotches and markings of bright gold on them, make it very acceptable in a collection of these popular annuals.

POPPY. *Fairy Blush.* A double white poppy, petals tipped with red or deep pink. Very noticeable in a collection, although not really pretty.

DIANTHUS. *New Flame.* A double dark crimson free-flowering type of the double Chinese Pink. Distinct and useful.

SUNFLOWER. *Starlight.* This novelty of 1908 has proved an acceptable addition to the annual types of these hot weather flowering plants. Its cactus-like pale yellow flowers are very useful for cutting.

Dimorphotheca Aurantiaca. (Namaqua Land Daisy). This African daisy-like flower did not give as good results this season, owing to the wet weather during August and September. It evidently likes a fairly dry, hot summer.

Last year reference was made to some of the newer good perennials which had been tested at the Central Experimental Farm, Ottawa, and as few additional new ones of exceptional merit bloomed this year this occasion is taken to refer to some of the best ornamental trees and shrubs of recent introduction. Perhaps the best of these is *Hydrangea arborescens grandiflora.* This is quite a distinct plant from *H. Paniculata grandiflora.* The flowers are in large panicles, but are whiter than H. paniculata grandiflora, and it has a much longer blooming season, beginning in early July and continuing until frost. It is very effective when massed.

Much work has been done in Europe in improving the Philadelphus or Mock Orange, and some of the most charming hardy shrubs now available are among these. The best in order of blooming are: Philadelphus grandiflorus laxus, P. speciosissimus, P. Lemoinei Bouquet Blanche, P. Lemoinei Nuee Blanche, P. Lemoinei Mont Blanc, P. Lemoinei Manteau d'Hermine, P. Gordonianus gracillis, P. inodorus speciosus grandiflorus, P. columbianus floribundus, P. Gordonianus monstrosus, P. coronarius myrtifolius, P. Billardii.

The varieties of P. Lemoinei are low growing, from three to six feet high, and are particularly attractive. With a good collection of Philadelphus one can have bloom from early in June until near the middle of July.

It is surprising how slowly the newer lilacs are being introduced into Ontario. Some of these are so superior to the old ones that there should be no delay in procuring them.

Among single ones, Alba Grandiflora, Aline Mooqueris, Congo, Delepin, Jacques Calot, Lovaniensis, Madame F. Morel, Negro, and Toussaint-Louverture give a good range of colour from pure white to the darkest shades. Among doubles, the following are the best: Charles Joly, Comte de Kerchove, Condorcet, Emile

Dicksonia Punctilobula.

Lemoine, Georges Bellair, Jean Bart, Madame Abel Chatenay, Madame Amelie Duprat, Madame Casimir Perier, Madame Leon Simon, Marc Micheli, Michel Buchner, President Grevy, President Viger.

While introduced a good many years ago, Bechtel's Flowering Crab is seldom seen in Canadian gardens, but it is one of the most beautiful small trees. It blooms during the fourth week of May at Ottawa. The flowers are large, semi-double, and of a delicate shade of flesh pink. They have a very delightful fragrance, much resembling that of violets. No fruit ever sets on this tree and it blooms profusely every year.

There are many other beautiful trees and shrubs, not generally known, which might be mentioned, but space will not permit.

(Signed) W. T. Macoun.
Wm. Hunt.
R. Cameron.
M. E. Blacklock.

THE MODERN GLADIOLUS.

H. H. Groff, Simcoe.

The herculean task has been placed upon me, in the brief period allotted, some twenty minutes, to carry you over the period of one hundred and twenty-five years since the Gladiolus became known as a popular flower for both professional grower and amateur, and also to take you around the world in so short a time, and I shall certainly be happy if, travelling as we are on the Horticultural Limited to-day, I do not leave you in one of the oceans on either side of this continent. It will, however, be my preference to carry you to those higher altitudes in which the mind of the originator and plant breeder loves to revel, from which I will leave you to descend in mental parachutes to your present normal condition previous to my attempt to incite your imagination, for without some imagination the originator must feel handicapped. He is certainly relatively handicapped in comparison with the worker who confines his mental flights to the more ordinary conditions with which he has to deal.

I wish to speak to you of the Modern Gladiolus, as open to the same opportunities that have been opened to me. I wish to speak to you as the highest court of intelligence, in this or any other country, as progressive and intelligent amateurs, because you know as well as I do that it is not possible for you to depend entirely upon the judgment of those in the trade or profession, and I advance this as an argument in favor of what I am asking you to follow me in: that if it has been possible for me, an unknown and untrained man, living in an obscure town, in a country of slandered climate, to achieve some measure of success, certainly the field is open to all of you in some degree, and that is why I wish to speak to you on this point, rather than with regard to the detail of cultivation, etc., with the hope that the efforts of the individuals of this Association may attain such material results of value and usefulness as will redound to the glory of Canada and the Empire.

The title of the Modern Gladiolus indicates an earlier development, commencing with the Gandavensis section, followed by the hybrids Lemoinei and Nanceianus, the work of M. Lemoine, that called Childsi, the true hybrids of which were originated by Prof. Leichtlin, but later reinforced by purchase with many lacking qualities irrespective of origin or breeding.

As you are aware, the Gandavensis type originated some 125 years ago, but it has been since subjected to such excessive inbreeding as to destroy most of its original and inherent vitality and render the higher qualities of the section of indifferent adaptability to the general conditions of cultivation.

It was produced from the species oppositiflorus, floribundus, psittacinus and cardinalis.

I do not wish to weary you as to the detail of these wild types or the effect of the cross of the species oppositiflorus, which, as the name indicates, has the objectionable character of opening the flowers on each side of the stem, to the right and to the left, instead of facing one way, as we prefer that they should do. These objections, however, are capable of being adjusted and controlled by scientific breeding.

The Lemoinei section is produced by crosses on the species purpureo-auratus, meaning purple and gold, with peculiar blotches in the throat, resembling the markings of some butterflies. The principal objection to this section in its earlier development is the fact that it takes too much after the character of the species

the petals of which, while having the beautiful throat markings, also carry an objectionable cowled or hood-like formation in the flower.

The section known as Nanceianus was produced by crossing the Lemoinei section with the species Saundersii.

The effect of this species is to throw the petals wide open, as well as to elongate the lateral petals, and also to supply the finely dotted throat markings of that species.

The effect of crossing the species Saundersii with the rich colors of the Lemoinei section, has made these hybrids Saundersii more beautiful than the work of Prof. Leichtlin, called Childsi, of necessity bred from a lower quality of Gandavensis, than those produced later by M. Souchet, the great French originator and improver of the Gandavensis section.

Before leaving the Gandavensis section I will mention one important point, and that is, that, owing to the long period of inbreeding, its constitutional vigor has been impaired, and it is not generally adaptable to general cultivation with great success. Mr. Lemoine makes the claim that even in the South of France he is unable to grow the Gandavensis section.

The so-called American Seedlings are largely the result of self-fertilization, and the effect has made itself apparent to such an extent that these types are particularly lacking in quality, the natural result of the more dominant influences that tend to the reproduction of the strongest and most undesirable characteristics. Indeed a prominent grower in the United States showed me his collection with the idea of ascertaining the cause of their depreciation in desired qualities. It is very apparent that types of the greatest vitality are bound to exercise their influence at the cost of quality and desirability, of which this experience is an illustration.

The work of Mr. Burbank on this flower was given more for the purpose of adding strength to the texture of the flower, as well as to increase the stability of the spike in order to contend against the dry weather and hot winds of California. Years ago, when prosecuting my work in connection with this flower, I bought out the life work of Mr. Burbank, and also that of Dr. Van Fleet, whose work was carried on with the view of producing valuable commercial types direct from the species. My contention has been for years (and this has been amply proven by my past experience) that the further you can remove from the wild types the better it is from the points of quality and value.

There are other species which have entered into my work besides those which I have named, which are: Cooperii, Adlami, Leichtlinii, Papilio Major, Dracocephalus, Aurantiacus, Quartinianus, Primulinus, and several unclassified botanically. We have made especial progress in laying the foundation for pure yellows. There is a strong commercial demand for them, and I am making such good progress in connection with my work on that color that I hope to produce the same high standard of quality in this section of my hybrids as has marked those of my work on all other colors.

It is most interesting to know that the discoverer of the species Primulinus had charge of engineering that great cantilever bridge at Victoria Falls, over the Zambesi River, Africa, and it was his father, a member of the firm of Sir Douglas Fox & Partners, who supplied me with the first corms. It is a further compliment to us to know that Mr. Fox, after completing his work on that great structure, is to-day a member of the engineering firm of Wragge & Fox, in the city of Toronto, Canada.

I am going to answer, in my address, two questions that I have never answered, and which I have been frequently asked:

How did you do it?

Why did you do it?

The independent investigator, of which I claim to be one, has many advantages over that of the professional, or trained, investigator. We are untrammelled by tradition and are mind-free. It enables us to exercise our individual characteristics in developing along certain lines which are contrary to those of generally accepted practice. The character of the work is absolutely unlimited in its interest, and those who ever enter upon it, and make any measure of success from the outset, are almost sure to continue it as long as life may last.

In answer to this question, "How did you do it?" my first incentive was to supply Canada, but, in doing so, it became necessary for me to meet the Canadians through the horticultural press of the United States, at that time published in New York and Chicago. It was fortunate for me, in a way, that we had not the excellent publications that we have to-day, for, in endeavouring to reach Canada through the press of New York and Chicago, I was also able to reach others, even in foreign countries as far as the Islands of Australasia.

In breeding from specific types, I took exception to the general commercial practice, in which objection time has proved me to be correct, for in breeding from such specific types as those to which I have referred you confine yourself to their characters and influences, and you also limit the adaptability of their progeny to general cultivation. This is the outcome of the effect of the species themselves, and the ages of environmental influences have a tendency to restrict rather than advance their progeny on lines that would be approved by you.

There are many points to consider in connection with the character of the plant. Personally, I prefer those of upright growth, although there are many that, after rising above the ground about two feet, droop gracefully, very much resembling some of the palms which are so attractive in our greenhouses. There are other things, as texture, but much depends upon the character of that texture and the usefulness of the plants in question. If your stalk is just a little too soft, or a little too rigid, or too willowy, it is bound to affect the character of the plant in blooming in water. You will find that a spike of the plant that is too hard in its composition will not carry the water with sufficient rapidity to allow for the satisfactory development of the flower in water: on the other hand, if the texture happens to be a little too pithy and too weak, it affects the whole value of that spike. There are many points to which I could refer, but I must be brief.

The question of the products of adverse conditions, such as those I have to contend with at home, are, in a way, favorable to better development when the product of such are subject to more favorable conditions in other parts of the world. The effect of cultivation for better bloom, while producing finer flowers, also has the effect of weakening the plant, for it in turn affects the character of the corm itself. So, you will see, it is quite reasonable to expect that if we attempt to develop any one special characteristic it usually has an adverse influence on some of the other characteristics which we also desire to conserve.

The relative value of knowledge and theory is absolutely valueless without practice, but practice, unless accompanied by desirable, valuable and necessary stock, is also seriously handicapped. Such stock for the purposes of breeding can only be secured in two ways, the one is by purchase and the other is by production yourself, and if you are fortunate in being able to produce advanced types, as it has been the great incentive of my work to do, so much the better; in fact, until I accomplished this, I was unable to carry on my work to that degree of excellence that has secured recognition throughout the various countries of the world

To illustrate the methods by which I have overcome the natural characteristics of unequal seasons of bloom at breeding time, we may take such species as the one to which I have referred, on which I am building so much hope. My early crosses in connection with that were made by first forcing the African corm in pots under glass, in order to hasten their maturity and to have them bloom at a time when the mother plants of those types that I had developed, as the result of selection and select breeding, were ready for these crosses. Again, if in your younger stock you are growing large quantities of immature varieties, you will be able to use the pollen from the flowers of the younger plants of the early blooming section with the more mature plants of later blooming types, and by thus bringing your pollen from one section to another you are able in a way to bring together these two influences with the idea of transmitting in breeding the special characteristics of one to the other, thus making the types of early blooming habit bloom later in the season, and the character of size and strength peculiar to the later blooming types appear weeks earlier than normal.

Now, if I may be pardoned for some personal references, it is only fair to you that I should give you, in answer to this question, some reason why, and some experiences by which I have accomplished what I have done, and which may be encouraging to you. I began this work at 37 years of age, which was 20 years ago. In regard to the hours of labour, during the height of the season, about 18 hours out of the 24 will find you still with something left to do.

Speaking of the 20 years of my work, I would also like to say that, so far as the public are concerned, and the people of the world are concerned, only the first ten years of that work are known. I have reserved in my own private collection the last 10 years of my work, in addition to that which contains something over 50,000 varieties in the various color sections of the most advanced types that I believe it is possible to see on earth, and that is saying a good deal.

I have a registered and numbered list for proving of 1,700 varieties, about 700 too many, and to prevent that reaching 2,000 I have several supplementary lists which contain varieties good enough to number, but waiting for some of the selected types to falter and fail in the years to come.

As to the cost, it was not until I had spent something like $3,000 in addition to my own personal expenses, and those of my assistants, that I was able to create an influence that was worth considering. There is a popular fallacy in regard to flowers: people who grow other products of the soil think that flowers, being purely decorative, do not cost money to produce, but on my three acres my development work costs me on an average $5,000 in cash for every three years of my work, an average of $1,600 per annum on three acres, which you will consider fairly intensive horticultural work.

To come back to the point I was anxious to bring to you at the outset: This work is not done, as a rule, by those in the trade or profession, consequently I am able to appeal to you as amateurs, like myself, some of you about the same age as when I began this work (37), showing that I was then only within about three years of chloroforming age, and that you, as amateurs, are capable of taking up some one of the many lines open for development. Do not take up too many, because if you are going anywhere you can go further in one direction than in many, and the possibilities in any one are unlimited.

Now there are absurd views held by the professional grower and the dealer which I would like to deal with generally, and which are simply beyond conception. I have had a professional florist in my fields object to the color of a certain flower, and it was not until I said, "Why, Madam, the flower and ribbon in your

hat, and the scarf about your waist, are the very colors you are taking exception to," that the absurdity of the comment became apparent. Again, when you come to introduce the result of your work to public notice you will have to be prepared for something often more disagreeable. I am quite willing to condone those errors on the part of professional growers or seedsmen who may inadvertently get hold of a variety of the history of which they have no knowledge, and which they do not take the trouble to trace; but to deliberately and fraudulently falsify the pedigree of a plant of the origin of which he has no knowledge, gives rise to feelings of irritation which I find it difficult to express in the language of polite society. I will say, however, that the malodorous task of lifting the pelt of some of these vermin is somewhat compensated for by the sport that we have in running them to earth. To briefly sum up the possibilities of development of this flower by scientific selection and breeding, I am able to show you in my trial grounds the greatest beauty, quality and diversity in the whole range of modern floricultural development.

As to recognition (and you will excuse me for being personal again, for I must justify my personal remarks) I will give you what comes to me as hearsay:

Some years ago the Department of Agriculture at Washington advised me that they expected, in fact it was on record in their department, that the flower on which I was engaged would solve one of the most important problems of heredity; that of the transmission of characters in plants and animals, and they asked permission to send one of their professors for the purpose of conducting an investigation, and also to pay me for the privilege if I wished it. Professor Harter made his investigation, the records of which are now in the Department at Washington. The honor of this recognition was duly appreciated by me.

Twelve years ago a business man in the United States wrote to me that he was about to visit Germany, and at his request I gave him a letter of introduction to Prof. Leichtlin at Baden-Baden, and forgot all about it. Toward the close of the season one day this man came into my office. He had travelled 100 miles to come and say, "Mr. Groff, I have just returned from Germany, and I see more beauty and quality in my own garden from your hybrids than on the Professor's farm in Germany, and I have come to see you and tell you so before the season closed."

Again, Mr. Phillipe Vilmorin, of Paris, commented upon the improved types of purpureo-auratus hybrids that I produced, and at the Pan-American Exposition and at the World's Fair, he told us on both occasions that they were infinitely superior to anything that had been sent from any other country, and he liked them much better than the product of the originator, Mr. Lemoinei himself, on account of the open character of the flowers.

I have succeeded in bringing to Canada the credit for all the gold medals that have been given for the Gladiolus in this country and in the United States, since the Pan-American Exposition. I have received personal recognition in the Honorary Membership of the Canadian Seed Growers Association, and from the Royal Botanic Gardens, Kew, England, from Australia, Tasmania, New Zealand, England, and Ireland, and from the Imperial Botanic Gardens of Tokio, Japan; and the name of Canada and the Gladiolus were published in the *Tokio Horticultural News*. The Curator there wrote me and said, that, although they had a collection of over 5,000 from leading seedsmen and growers of the world, they were the finest types they had in the Imperial Botanic Gardens, excelling all others in quality and beauty of coloring.

And last, but not least, the honour and privilege of addressing you here to-day.

Before closing let me give you an illustration in the science of breeding. Mr. McNeill was kind enough to mention yesterday some work that I had done in the improvement of sweet corn. I find that the best way to prepare ground for the gladiolus is to follow another crop, preferably corn, to manure with stable manure, grow a crop of corn, and next year add some potash fertilizer and lime.

For some years I have been growing the Black Mexican, which I have here, with which you are all familiar, and the Golden Bantam, a later hybrid type. For these specimens I have to thank my friend Prof. Macoun, Ottawa.

The Black Mexican has always been objected to on account of its color; the Golden Bantam on account of its dwarf habit, as it grows only about 4 ft. high, and as Mr. McNeill said "Why is not Golden Bantam good enough?" I replied, "Nothing is good enough that you can improve." So I proceeded to cross them

Entrance Gate to a Galt Residence. Photo from Mr. Jaffray.

for special development, retaining the flavor, color and quality of the Golden Bantam, while carrying the rather more delicate texture characteristic of the Black Mexican. This cob in my hand is the result, and you will see that I have at least increased the size materially, and I claim that my hybrid carries the quality of the two parents. The plant itself grows from 8 ft. to 9 ft. high, which is the result of revitalization between a type which has been in existence for hundreds of years and this hybrid type of relatively modern production.

Now I wish to pause for a moment, and say to you that I was asked by the Canners to submit this to them for the purpose of considering whether it would be useful for their purpose. They said it was quite large enough, but asked if I could transmit the characteristics to a white, because the public are so prejudiced as to color that they will not use any other color than a white. I was unable to promise that, because I claim that in colors you get flavors it is impossible to get

in white. The Canners said it would take thousands of dollars in advertising to educate the public to discriminate in favour of the higher quality.

Immediately after that I received a request from a farmer who had used some of it for a supply of seed. He said that 100 bushels per acre for common corn is very fair, I got 150 bushels without a single barren stalk in the whole field. He said he would like to get some of mine, because he found that his hogs when offered some of this type and some of the white would leave the white for the yellow, the hogs not requiring thousands of dollars of advertising to educate their taste.

I also exhibit a newer and more advanced type of the yellow, which is of much finer grade, but above and beyond all I wish to show you an illustration in proof of the so-called theory of mutation, a direct result of hybridization, a beautiful strawberry red. This has become in a single season a type of exceptional fixity, and it does not mix throughout the cob, as is to be expected, but the product of each plant is entirely of the new color. It is the product of a single ear, the only one in an acre of the new yellow hybrid.

This year (1910), I found four plants from four different ears of the yellow, bearing seven ears of the red mutant, showing the persistency of the yellow hybrid to produce this mutation, as the original cob of the previous season was planted at a safe distance. The first ear of the new red gave me some 300 ears, one-half coming true to the new type, the other half being identical with the original yellow hybrid parent.

My opportunity for advance in 1911 is most materially enhanced by the addition of the product of four distinct plants, seven ears, for crossing with the progeny of the original ear of 1909, now one hundred and fifty ears.

I would explain for the benefit of those who are looking for evidence of correlation, that it made no difference whether the color of the parent plants or their silks were pure green or deep purple, or every intermediate shade of these two colors, the ears on all such plants came red or yellow only. I mention this apparent lack of correlation for the benefit of the gentlemen here present from the colleges.

In answer to the question:—"Why did you do it?" The legal profession always say that no man ever does anything without a motive, and I had a motive, and that was, achievement. It is a motive quite sufficient to carry you almost any length in endeavor. However, knowing your practical preference for inspiration with knowledge, may I not confess to inspiration with hope, because is it not something for us to feel that we, groping weakly and blindly at the feet of the Divine, may reach out in our inborn craving for the Infinite and handle things unseen in our direction of the vital forces under our control, and by the Divinity of our inspiration, and the use of our opportunities, we may stand forth in the dignity and majesty of creators.

And again, is it not worth while to feel that we are able to add something to the world's quality,—good enough to earn recognition on this Continent, from the Atlantic to the Pacific, in the Mother Country from the Royal Horticultural Society and Botanic Gardens, from Europe and Africa, and in Asia from the Imperial Botanic Gardens of Fair Japan, and from the great Island Continents of Australasia?

And yet, again, is it not something to feel that the influence of this quality will be handed down the years yet to come, after all present have long passed away, with a standard of quality and value that carry honour to name and Nation, and added lustre to the glory of our Great Dominion, that brightest gem in the Crown of Empire the world has ever known?

THE PRESIDENT: When are the consumers of corn likely to get the results?

H. H. GROFF: There are some seventy points in an ear of corn, so we are still a long way from possible perfection, but if you see that I do not forget it, you shall have a cob of corn at once. I wish I could extend this to all of you, here present.

As to my success with the mutation, white Cocker Spaniels. This is another experiment, and it will interest you to hear that it has cost me $500 to prove that the mutation of pure white in the Cocker Spaniel was capable of transmission through an outcross, to the second generation. Having succeeded in that experiment, I am quite ready to go out of the dog business. But I had the satisfaction of proving that a mutation of the Cocker Spaniel to pure white, a purely Canadian product, was capable of transmission through an outcross with success.

Moved by W. B. Burgoyne: "That Major Snelgrove be our representative on the Toronto Exhibition Board." Carried.

J. KNEESHAW: We were very much interested yesterday afternoon with the report of Mr. J. Lockie Wilson, and also Miss Blacklock's report regarding school children. In Hamilton we this season distributed seeds among the school children and awarded prizes this fall. We had an exhibit of 250 entries from the different schools, and we found that it created a greater interest in the Society than anything we have undertaken before, and it is doing well. I notice that Toronto was not so successful. We distributed 1,200 packages, which we bought at 5c. a package, and the result was good. Of course, in addition to that we had the usual lectures and distributed bulbs and perennials, but the children's prizes created the greatest interest. We have furnished the *Horticulturist* to each member, and as far as I know it has proved satisfactory, and we are going to continue it. There have been objections to the way it is mailed, but we ought to adhere to our own periodical, which is better than any other. Our membership has increased from 330 to 404 during the year.

ADDRESS.

C. C. JAMES, DEPUTY MINISTER OF AGRICULTURE, TORONTO.

I do not propose taking up your time at any great length, or even the whole of the time allotted to me on your programme, but I have taken the liberty of bringing along with myself Dr. Creelman, of the Ontario Agricultural College, and a deputation of gentlemen representing thirteen Southern States of the American Union, some eighteen in number, and I am going to ask of you the privilege of allowing me to cut my speech short and replace it with a few remarks from some of these gentlemen.

This deputation has come to look over our educational system. They are going to Guelph to-morrow to spend the day there, but, meanwhile, are spending a day in Toronto. They have visited several of our educational institutions this morning, and we hope to show them some of the products of the Horticultural Exhibition this evening.

There is no way by which things can be proved better than by demonstration. For instance, we go to the Old Country and tell England, Ireland and Scotland that we can grow fruit in this country; they are inclined to doubt our word until we

put the fruit before them. They much prefer seeing than to hearing us talk of our own country.

By way of preface, for the information of these gentlemen, I would like to say that you are representing here the Horticultural Societies of the Province of Ontario, mainly in towns and cities: not the rural parts, at least not yet, to any large degree.

The aims and objects of this Association are largely town and city improvement. These things, as you know, are in the air. We have a great many advocates for various lines. The Societies, as represented here, are thoroughly practical in their work, the idea being in all cases to take hold of the lines of work which are most feasible in each case in the way of improvement of land and gardens, through the planting of shrubberies, and the growing of fruits and vegetables. Then their work takes on a larger phase, developing in cities and towns the desire for improvement on a greater scale. I do not know if there is anything further that I can add on that line.

I can simply say that I congratulate you on the work of the year, and the increasing interest that is being manifested in this work. Agricultural educational work is very slow. Some of us have been fifteen or twenty years or more at it, and occasionally we get very much discouraged at the progress made. Judging by the results along other lines, you should not be discouraged if your movement does not go ahead as rapidly as you could wish. It is a case of here a little, there a little, holding on to what you have and moving on a little further. We do see signs of improvement, although every once in a while we look at the dark side of the agricultural line or the horticultural line, and think that, perhaps, we are not developing as rapidly as we should, but we are making progress, and it might be as well to keep the bright side before the people, rather than the dark side.

ADDRESS.

Superintendent Joiner, North Carolina.

I am here with the representatives of thirteen Southern States of the United States of America, to sit at your feet and listen and learn about things of this sort. That is what we came for. It would be presumptuous, in the infancy of this work in my State, for me to address the Horticultural Societies of the great Province of Ontario. All the world knows that, as our great philosopher Emerson has said, "He who does anything better than anybody else in the world, though he lives in a wilderness, will wake one day to find the world has made a beaten path to his door." And so it seems to me that you, good people of this great Province, have succeeded in awakening and directing a great agricultural interest, and teaching your people to mix grains with your soil, perhaps better than any other people upon this continent, and, therefore, you are finding to-day that even from the everglades of Florida to the far lakes on the north a beaten path has been made, and the representatives of that extremely southern portion of the great continent of America are here to-day to learn of you this world-old art of agriculture. And so we have come, as I have said, to sit at your feet to listen and to learn.

Perhaps you might be interested in just one or two things I might say of the great possibilities, the undeveloped agricultural possibilities of that region from

which we come, known as the South. You might be interested to know that in the State of North Carolina, for instance, from which I come, there is just now a greatly aroused interest on the subject of apple raising. In the mountainous part of our State we have an exceedingly fine climate and soil for apples; we have never made much of it because we did not know how. Through that region of North Carolina there runs what you have all read about, and what you have had some doubt about, I expect—a belt where frost never falls. I do not know about the frost, but I know that the fruit never fails and the frost never hits it there. You might be interested to know that two weeks before I left home to come on this trip, I was at a little county fair at the extreme eastern part of our State, near the sea line. Our land runs from level of sea to 7,000 feet above, and we have all the variety of climate lying in between that. I was surprised at the display of products, and carried home a pear, given me by one of the exhibitors, that weighed two and a half pounds. I do not know whether you consider that big or not.

And so there is a greatly awakened interest in apple-growing in my State just at this time, and it is all due to one who is so splendidly directing all that interest—the brother of the gentleman whom we shall have the pleasure of listening to, Prof. Hutt; and whose wife, Mrs. Hutt, a Canadian, is even a better man than he is.

And so I bear you to-day greetings from your sons and daughters in North Carolina, who are going to teach us how to grow fruit.

I do not wish to delay you longer. You may think I have been boasting a little bit, but though I feel humble in this assemblage I feel at home. You look very much like the people down in North Carolina. When I first came in here I thought I was in North Carolina. We belong to the same family, don't we; the good old English stock. The first white child born to English parents in America saw the first light of day on the eastern corner of North Carolina. I come from the capital city that bears the name of the great Englishman, Sir Walter Raleigh. It is true we had a little family quarrel about a hundred years ago, and it strained the relations a little, but we are marrying your girls and they are marrying our boys, and we are going to make up.

ADDRESS.

Superintendent Eggleston, Virginia.

I did not come here to speak, but, as Mr. Joiner has well said, we all came to listen and learn. I can certainly re-echo what he has said in regard to feeling at home among you. Surely a representative of the old Dominion does not feel a stranger among the representatives of the new Dominion.

Mr. Joiner always rubs it in when he sees a Virginian around about that first child being born off the coast of North Carolina. The only thing I can say is that coast was known as part of Virginia at that time. Anyhow, we had the first permanent settlement around Jamestown, and when I see your names around the streets and stores in Toronto it startles me. We have our York, Middlesex, Essex, Sussex; we have Prince Edward, the county in which I was born and reared. I shall not attempt to boast about what we are doing down there; Mr. Joiner has already boasted about what his State is doing. The truth of it is we simply hear what each has to say, the first who gets up works his speech off and the rest have to listen.

But we are greatly interested in what you are doing in Canada. We are reading about it, and we have been immensely impressed by what one of your great men, as we consider him, Dr. Robertson, has done. We regard him as a great man, and he has honoured us by coming to Virginia and talking to us, causing us to think along new lines. We have learned a great deal from him and expect to learn a great deal more.

After all, our problems are the same, and in these days of rapid travel, rapid communication, distance and mileage have been wiped out.

I was here last May, and went to Guelph. It was an education to see that great institution, and the good work that is being done there. We are going there to-morrow, and we are going to carry back the good things that we find.

Mr. Joiner has told you of two good Canadians in North Carolina. Now we have several in Virginia. We have a number in our public schools, and I have never seen a Canadian teacher in a Virginia school that was not first-class in every way. The thing that has impressed me here more than anything else about the Canadian people is their solidity and genuineness. It is the same good old English stock that all of us have in our veins, and we are proud of it.

ADDRESS.

President Creelman, O. A. C., Guelph.

I would like to assure you in the beginning that it is not altogether my fault that you have not got me at your meetings. I am a busy man. I have just returned from Washington; next week I have an engagement at Georgetown, at Brockville, and at Galt.

I am very glad indeed to be able to be here and to be permitted to speak to you. I want to say to you good people spreading the gospel of Horticulture throughout the towns and cities that you are doing a good work, and the thing above all others that strikes me is that this work has got to be spread in one direction. I am not here to give advice, but I want to say that the more demonstrations you have of the work which you are preaching carried out in your school grounds, in town parks, and in every bit of ground that ought to be embellished, the more quickly you will spread this gospel among the people themselves. The man from Missouri says, "Show me." This year above all other years the keynote was "Start the thing going." If it was Good Roads, build a piece and let the people travel over it, and then they will always travel over it and want that particular road. If you are going in for Horticultural improvement, have certain men in a town or city who are full of this thing, who will make their gardens so attractive along the lines that you are advocating that everybody will want a house and garden just as neat and tidy. "Show me," as the man from Missouri would say; that is the keynote.

I have much pleasure in welcoming these Southern gentlemen, and I am sure you are pleased to receive them. I lived ten years in the South myself. I went there a poor boy of 19, with my college expenses not paid. They kept me ten years, and gave me everything I ought to have. They helped me to pay my expenses, they made me feel at home, and they taught me all the things I know, and how to use them. I am very much pleased personally to have them with us, and I thank you for welcoming them so cordially.

An Ottawa Garden.

Photo R. B. Whyte

SHRUBS AND VINES FOR ORNAMENTAL PLANTING.

Prof. H. L. Hutt, O.A.C., Guelph.

The mere selection of some of the best kinds of ornamental shrubs and vines as the materials for the beautifying of the home surroundings is a comparatively easy task. To give comprehensive or definite directions for the blending and use of such materials in the development of artistic landscape pictures is much more difficult. Yet in the beautifying of any grounds much more depends upon the arrangement of the planting than upon the selection of the material. A carefully considered plan should always be made before any planting is attempted. If haphazard planting is done from time to time, setting out bushes here and there wherever there may be room for them, the yard will in time be filled with a collection of more or less beautiful specimens, but the place will be entirely lacking in that blending and unity of part which makes a restful harmonious home picture.

Plan the Planting.

A well thought out plan for the grounds and their environment is therefore a first consideration. The selection of the material to carry out the plan naturally follows. In the preparation of such a plan, the whole thing should be considered as a landscape picture in the process of development. The house naturally stands out as the central feature of the picture, the lawn is the canvas upon which the picture is to be placed. The larger material, such as evergreen and deciduous trees, should form a background and framework for the picture, while the smaller materials, such as shrubs, vines and plants, give variety, detail and finish. Shrubs should not be scattered promiscuously over the lawn, nor should they be confined to the front yard only. The view out from the building should be upon a more or less spacious, open lawn, with the planting so arranged as to hide from view any unsightly objects and to afford the most pleasing outlook in every direction possible.

Planting in Masses.

As a rule, shrubs may be used most effectively in irregular groups or masses, several of a kind being grouped together, and often several such groups may be formed into an irregular clump or border. The distance apart at which shrubs should be planted in mass planting will vary from three to six feet, depending upon the ultimate size of the shrub. For immediate effect, it is best to plant fairly thick and thin as may be needed afterward.

The Disposal of Shrubbery.

If shrubs are not to be scattered over the lawn, where then should they be planted? This is a question which each home designer must answer in preparing the plan for his or her own home grounds. In a general way, it will be found that the most satisfactory disposal of shrubbery will be such positions as the following:

1. *Against the walls of the building* where they help to make the building blend more or less naturally into its place on the lawn. They should not form a regular hedge about the building, but should be used in nooks and corners where they will hide the uniformity of the foundation walls and not obstruct the view from any of the windows.

2. *Along the boundary lines*, where an irregular border of mixed shrubbery is far more satisfactory and ornamental than a division fence, or even a straight hedge. If a fence is an absolute necessity, shrubs and vines may be used to screen its unsightliness from view.

3. *In the foreground among trees* to blend these more effectively with the lawn. And in the same way shrubs also afford an excellent background for flower borders, which are in far better taste than formal beds cut out on the lawn.

4. *At the entrance to grounds* and along walks and drives. Of course, where the grounds are so small as to permit of only a straight walk to the front door, such planting in front may not be advisable. Where it is possible, however, to bring in the drive or walk on a graceful curve from the side of the grounds, shrubs may be massed at the entrance and grouped in the bays of the curves so as to give apparent direction to the walk, and thus lend a charm to such an entrance which the bare straight walk can never give.

5. *To cover rough banks and hide unsightly objects.* Shrubs may be effectively used to screen from view unsightly outhouses or buildings, and as a good ground cover on banks that are too steep to be kept mowed. In fact, a steep bank affords the best opportunity for a fine display of massed shrubbery and vines.

Selection of Shrubs.

Where we have such a great variety to choose from, the selection of the best kinds of shrubs may present some difficulty to the planter who is not familiar with them. The matter of hardiness or adaptability to the locality should, of course, be a first consideration, and in this particular the results of trials at the Ontario Agricultural College, Guelph, and at the Central Experimental Farm, Ottawa, where the climate conditions are severe, afford a fairly reliable guide as to what may be grown in the colder sections of the Province. There are, however, many choice kinds which will not stand the climate at either Guelph or Ottawa, that are perfectly hardy in southern sections of the Province.

The following list includes a few of the best of the hardy ornamental shrubs, from among about two hundred varieties that have been tested on the College campus at Guelph during the past twenty years. The list is given in the order of blooming, and covers the season fairly well from May to September.

Hardy Flowering Shrubs.

1. *Forsythia* (Golden Bells). A loose, open-growing shrub about 4 feet high, not entirely hardy at Guelph, but valuable, because of its very early flowering. In bloom about the end of April. Flowers, large golden yellow bells, appear before the foliage and last two or three weeks. The flowers show best against a dark background of spruce or other evergreens.

2. *Ribes aureum* (Golden Currant). A vigorous growing bush, about 6 or 8 feet in diameter. Flowers golden yellow, very abundant and have a delightful fragrance. In bloom about the second week of May and last two weeks.

3. *Pyrus Japonica* (Japan Quince). A showy bush, 6 or 8 feet in diameter, with handsome glossy dark foliage. Flowers large and showy, either brilliant scarlet, salmon, pink or white. In bloom about middle of May and lasts nearly three weeks. Produces fruit which is very aromatic and is sometimes used for jelly making.

4. *Prunus Japonica* (Flowering Almond). A very handsome small shrub, about 3 feet in height. Bears a great profusion of pink flowers like little roses. In bloom about the third week of May and lasts a week or ten days.

5. *Caragana frutescens* (Siberian Pea Tree). A very hardy, showy little bush, about five or six feet in diameter. Has a great luxuriance of fine light green leaves, an abundance of small clusters of pea-shaped yellow flowers. Bloom lasts a week or more.

6. *Syringas* (Lilacs). There are now over a hundred varieties offered in the catalogues of some of the large nurserymen. For a lengthy list see the catalogue of Ellwanger & Barry. The lilac is valuable, because of its hardiness, richness and freedom of bloom, its delicate fragrance, handsome foilage, good habit, vigor and healthfulness. The older the bush, the more freely it blooms. There are now both single and double flowers of nearly all colors ranging from pure white through pinks and reds to lilacs and purple. With a good selection of varieties the bloom may cover the season from the third week in May to the first week in July.

S. persica is one of the earliest and S. japonica, a creamy yellow, one of the latest.

7. *Pyrus angustifolia* (Bechtel's Double-flowered American Crab). A crab apple tree of medium size, and very hardy. About four years after planting it begins to bloom and bears large, double pink flowers an inch and a half in diameter. In bloom about June 1st, and lasts about two weeks. At a distance they look like small roses and are very fragrant.

8. *Spiraea van Houtei* (Van Houtte's spiraea). This is one of the best of the spiraeas. It makes a graceful, symmetrical little bush, about 5 feet in diameter, with slender drooping twigs. The bloom is pure white, very profuse, appears the first week in June and lasts about two weeks.

9. *Viburnum opulus sterile* (Snow-ball). This is a hardy, free growing shrub, about 10 feet high, which bears large round clusters of pure white flowers which look like snowballs. In bloom about first week in June and lasts over two weeks.

10. *Lonicera tartarica* (Bush honeysuckle). A very hardy symmetrical bush, ten feet or more in diameter. Has an abundance of bloom every year, which appears the first week of June and lasts about a week. The bloom is followed by showy red or orange fruits, which make the bush attractive long after the bloom is gone. There are red, pink, and white varieties, all of which are worthy of a place on the lawn. Good varieties may easily be grown from seed.

11. *Diervilla rosea* (Rose-colored Weigela). This is a handsome bush which is only half-hardy at Guelph when young, but becomes hardier with age. It makes a bush 4 or 5 feet in diameter. The flowers are large and bell-shaped, appearing among the foilage the first week in June and lasting nearly three weeks.

12. *Philadelphus coronarius* (Garland syringa). A hardy, vigorous bush, about 10 feet in height, bears large white flowers like orange blossoms. In bloom about middle of June and lasts over two weeks.

13. *Rhus cotinus* (Purple Fringe or Smoke Tree). A hardy, thrifty shrub which grows 10 or 12 feet high, and makes a shapely bush. About the middle of July it comes in bloom, and from then on till autumn is covered with curious fringe or plume-like flowers which are very showy.

14. *Hydrangea paniculata grandiflora.* Somewhat straggling growing shrub, which may become 6 or 8 feet high, but does better if pruned back severely every spring, the same as is done with roses. Bears large panicles of white flowers. In bloom about the middle of August and lasts three or four weeks.

View of Foliage Plants.

A Few More Good Ones.

In the preceding list we tried to confine our selection to a dozen of the hardiest and best bloomers to cover the season: in the following list are included a few other good kinds valuable for special purposes, or in southern sections.

1. *Althæas* (Rose of Sharon). Upright growing shrubs 5 or 6 feet in height. Not hardy at Guelph, but do well in southern sections of Province. Bear large showy flowers in a great variety of colors from white to red and purple. In bloom in August and September.

2. *Berberis Thunbergii* (Japanese Barberry). A very hardy, dense growing bush about 4 feet high. Attractive at all seasons of the year. Comes out early in spring with fine bright green foliage, which assumes brilliant autumn colors, of orange, scarlet and crimson. Flowers are greenish yellow and not conspicuous, but the clusters of bright red berries are attractive all winter. Makes an excellent hedge.

3. *Clethra alnifolia* (Sweet Pepper Bush). An upright growing shrub, 3 or 4 feet in height. Bears terminal spikes of creamy white flowers in August.

4. *Cornus alba* (Siberian red osier). A very hardy, vigorous shrub, 6 to 8 feet high. Flowers creamy white, in small flat-topped clusters. Particularly valuable for winter effect because of the bright red color of the branches, especially in early spring.

5. *Daphne cneorum* (Garland Flower). One of the daintiest of flowering shrubs, of trailing habit. Not over a foot in height and branches a couple of feet long, covered with dark, glossy evergreen leaves. Bears numerous heads of fragrant pink flowers, about 24th of May.

6. *Deutzias.* There are a number of varieties of this showy flowering shrub, varying in height from 3 to 8 feet. They are not entirely hardy at Guelph, but do well in southern parts of Ontario. Very floriferous, bearing long white, or pink clusters of bloom, about the middle of June.

7. *Euonymus alatus* (Burning Bush). A hardy, symmetrical bush growing 6 or 8 feet high. The flowers are greenish white and inconspicuous. Valuable for its effect in fall and winter, due to the showy rose pink seeds which are exposed in orange colored seed capsules.

8. *Kerria Japonica* (Globe Flower or Japanese Rose). A handsome flowering shrub, about 2 feet in height, with slender green branches, and bright yellow flowers appearing from July to October. At Guelph the extremities of the branches usually kill back in winter to the snow line, but in southern Ontario it is quite hardy.

9. *Ligustrum Ibota* (Privet). A strong growing, symmetrical bush, 8 to 10 feet in diameter. Fairly hardy at Guelph, and in southern section almost an evergreen. Foliage, glossy dark green. Flowers appear about end of June as terminal white clusters: by autumn these become glossy black berries, which make a marked contrast against the snow in winter.

10. *Robinia hispida* (Rose acacia). A low growing locust, about 3 feet high with pretty compound leaves. Flowers rose colored and very showy in loose hanging racemes. In bloom the last of June.

11. *Rosa rugosa* (Wrinkled Japanese Rose). One of the best of the roses to grow as a shrub. Grows about 4 or 5 feet high. Has leathery dark green leaves that are not attacked by insects as are those of other roses. Flowers large, single, white and purple. Semi-double and double varieties are now being introduced. Fruits are large, bright red and showy in the fall and winter.

12. *Symphoricarpus vulgaris* (Coral berry). A dense growing, hardy shrub, about four feet in height. Flowers are greenish red, appearing in July. The berries take on a coral red coloring in the autumn. Valuable for massing.

13. *Tamarix*—Tamarisk. Tall, graceful shrubs with long sprays of feathery flowers and foliage. Reaches a height of six or eight feet. Rather tender at Guelph and has to be cut back to near the snow line every spring. Does best in southern section of the Province.

Ornamental Vines and Climbers.

Vines and climbers are valuable, not only on small grounds where there may be very little room for trees and shrubs, but also on larger grounds where they

A Galt Home. Photo from Mr. Jaffray.

may be effectively used in a number of ways. Usually, the first place thought of for vines is next to the building, where they may cover the bareness of the walls, shade the verandah, or hang in festoons from the balconies. They may also be used to good advantage in covering arbors or summerhouses, draping a screen or hiding from view an ugly fence or outbuilding. On steep or rough banks they may be planted to form a good ground cover, and, probably, nowhere are they more effective in imparting a touch of natural wildness than when allowed in some secluded corner to run riot over the shrubbery and into the trees.

There are quite a number of hardy perennial climbers and each has its own peculiar way of making its way in the world. Some climb by twining of the stems, and others by tendrils or discs of various kinds. The habit of climbing must be taken into account in selecting the kind suitable for any particular place or purpose.

Many of our hardiest and best climbers are natives and may be obtained from the woods. Most of the good introduced kinds have been brought from Japan or China. The following list includes some of the best grown in this country.

HARDY CLIMBERS.

1. *Ampelopsis quinquefolia* (Virginia Creeper). One of the best known of our native climbers. An extremely hardy and rampant grower, climbing by means of tendrils. A variety known as Engelman's Virginia Creeper has discs at the end of short tendrils and clings fairly well to brick or stone, but not nearly so close as the Boston Ivy. This hardy variety is valuable as a wall-climber where the Boston Ivy is too tender.

2. *Ampelopsis Veitchii* (The Boston Ivy). A Japanese species which cannot be surpassed as a close climber for brick or stone walls, where the climate is not too severe for it. It does well here in Toronto, and at Guelph we have many fine specimens, which, though they may occasionally kill back in the winter, quickly renew themselves next year. It is well worthy of a trial in most parts of the country, and is more likely to succeed on northern than on southern walls.

3. *Celastrus scandens* (Climbing Bittersweet). A hardy native twiner, which may often be found in the woods climbing to the tops of the highest trees. It has rich glossy foilage and showy clusters of yellow fruits.

4. *Aristolochia macrophylla* (The Dutchman's Pipe). A hardy rapid-growing twiner with long slender green branches, and large round leaves; produces odd flowers shaped like a Dutchman's curled pipe: affords a dense shade as a verandah screen.

5. *Vitis vulpina* (The "Riverside" or "sweet-scented" wild grape). One of our hardy, native wild grapes which makes a good cover for an arbor or summer house.

6. *The Clematises.* The genus Clematis furnishes a number of choice climbing vines. One of the hardiest of these is:

Clematis Virginiana, or Virgin's Bower, which may be found in abundance in our northern woods, rambling over the shrubs and into the trees. It bears small white flowers in August. The feathery plumes following make it attractive in autumn.

Clematis paniculata is a Japanese species which is fairly hardy, and is one of the most profuse flowering of the small white flowered sorts. It is a strong grower with a wealth of rich green foliage. The flowers appear in September and October and last several weeks.

Clematis coccinia is a showy variety bearing medium sized rather odd cup-shaped scarlet flowers. To many these are at first disappointing because they do not open out like the large flowered varieties.

There are now many of the hybrid large flowering varieties of Clematis. Two of the best of these are *C. Jackmani*, with its beautiful large velvety purple flowers appearing in July, and *C. Henryii* producing large pure white flowers.

All of the clematises climb by means of the twining leaf stems which serve the double purpose of leaves and tendrils. Wire netting makes the best support for them, and has the added advantage that it may readily be detached and laid down with the vines where winter protection is necessary. When so laid down, the snow gives all the protection necessary at Guelph.

7. *The Honeysuckles.* There are several varieties of climbing honeysuckles offered by the nurserymen; two of the best are Hall's and the scarlet trumpet, neither of which are quite hardy at Guelph, although they do well in southern parts of the Province.

Lonicera sempervirens (The Trumpet Honeysuckle) is a fairly vigorous growing twiner with light green pufoliate leaves and showy terminal clusters of long tubular scarlet flowers.

Lonicera Japonica Halleana (Hall's Climbing Honeysuckle). This is a Japanese variety, and one of the best in cultivation. In the southern sections of the Province it is almost an evergreen. It is easily trained upon wire netting, and may be laid down for winter protection. It bears in June a profusion of showy, fragrant, creamy yellow flowers, and keeps on flowering more or less throughout the season.

8. *Tecoma radicans* (Trumpet Creeper). This is a vigorous growing, handsome climber, which unfortunately is not hardy with us at Guelph, although it does well here in Toronto and in southern sections of the Province. It climbs both by twining and by rootlets. With its swaying branches and pendulous flower clusters, it is a fine wall companion for the Boston Ivy to relieve the smoothness and regularity of the foliage of the Ivy.

9. *Wistaria Sinensis* (Chinese Wistaria). This is one of the handsome climbers we read about, but seldom see in Ontario, except in the southern sections where it does fairly well.

10. *The Climbing Roses.* A list of good climbers would hardly be complete without a few of the climbing roses. Of late years there have been a number of new kinds introduced. If I were limited to a choice of three of these, I would take Crimson Rambler, Dorothy Perkins, and Lady Gay.

HONORARY DIRECTORS.

H. J. Clark: I would like to ask if the Honorary Directors are voting members of the Board of Directors?

The President: Yes.

H. J. Clark: Is that in accordance with this Constitution? In a Society as large as this one a single year is sufficiently long for the President to hold office. In the matter of the directorate increasing to 14 we shall soon have a cumbersome body, and I move that the term of office of President be limited to one year, and that his title of office for the year following be Honorary Director, and that he have the full voting rights of a Director for that year.

A Member: I second the Resolution. In an Association that expects some of the members to be ambitious enough to reach the chair, two years is too long for the President to preside.

The question asked by Mr. Clark is very pertinent. It has been stated that the Presidents have been made Honorary Directors: the resolution will make the President an Honorary Director with all the powers of a Director for one year. If the list of Honorary Presidents grows as it is now doing, it will become cumbersome paying their expenses attending meetings, and the money might be used in some other direction. The resolution is quite satisfactory and the Association ought to take that view of it.

J. Lockie Wilson: There is another view of this matter. After a man becomes an Honorary Director he is shelved, practically, he could not become a Vice-President and could not fill any of the offices in the Association—he is simply an Honorary Director. These honors should pass round, and there is no reason why a President should not come back to the chair again. A man who has proved a good director, a good second vice-president and first vice-president, and then president, has had a reasonably fair share of the honors, but we might at some future time want him for our president. I am quite in sympathy with the motion, and I think it should carry.

A MEMBER: It is but proper that delegates, as they are appointed, should use their judgment as to who they will elect to the chair. It is a common thing in all bodies, in Municipal Councils from the Mayor's Chair down, in societies and others, that the presiding officer is nearly always elected for two years. It is generally contended, and rightly so in a great many cases, that the presiding officer during his first year of office is only actually getting into the real work thereof, and that during his second year of office he can do better justice to the work than he could in the first year; therefore it naturally follows that the delegates shall say who shall be elected in this Society, and that those who follow shall say next year, and the year following, and it is not for us to say whether they can elect a man or whether they cannot. I believe the delegates would act honestly, and if they had a good man they certainly would make an effort to keep him if the Association were doing good work; and, more than that, I think they should be just as quick in removing him from the chair if he were not competent as they would be in re-electing a good man. Therefore, on that basis, I oppose the motion to confine the term of office to one year.

But I will support the motion with regard to the Honorary Directors. I believe that when a delegate or officer has received the highest compliments that have been given by any organization, they should take a seat in the rear ranks with the other delegates, and if the delegates see fit to re-elect them well and good; but, as it is now, in a few years you will have a surplus of honorary directors and they will entirely out-vote the officers.

H. J. CLARK: I move an amendment to the question of honorary directors. The delegates are in a position to vote who shall be president, vice-president and second vice-president, that is what you are here for. Now, of course, there is a good deal in what my friend says, but you must recollect that the President served a good many years before he reached the chair. Now, with all due deference, we will always have somebody who will fill that chair just as well as you think he ought to fill it. I hereby give notice that at the next regular meeting of the Association I will move that the Constitution be so amended that the retiring President be styled Honorary President for one year following the close of his term of office as President, and that he be entitled to the voting rights of a Director for that year, and that there be no honorary directors of this Association.

T. D. DOCKRAY: I move that W. B. Burgoyne, St. Catharines; Prof. W. T. Macoun, Ottawa; Prof. Hutt, Guelph; and Major H. J. Snelgrove, Cobourg, the four Honorary Directors of last year, be re-elected.

The motion was seconded by W. A. Thom and carried.

THE ST. CATHARINES CUP.

W. B. BURGOYNE: The competition for this cup this year was very keen, and the judges had difficulty in deciding which Society had won the prize. However, they awarded it to the Toronto Horticultural Society, which made a splendid exhibit, and it is my pleasure to-day at this meeting to ask the Toronto Horticultural Society to accept this cup, which has been engraved showing that it was presented by the St. Catharines Horticultural Society, and was won by Toronto in 1910. It has been a gratification to our Society to have the pleasure of donating this cup, and I am sure by the report read by Mr. Dockray that it was productive of good in his Society for the growth of flowers.

A Well-Kept Garden Walk.

Photo by T. McVity.

THE PRESIDENT: Mr. Dockray, I have much pleasure in presenting you, as representative of the Toronto Horticultural Society, with this very handsome cup, and hope that you will work just as hard during the coming year and keep it.

Moved by W. B. BURGOYNE: Seconded by MAJOR H. J. SNELGROVE: "That a committee be appointed to consider and recommend such revision of the list of flowers which shall constitute the exhibit in the competition for the cup donated by the St. Catharines Horticultural Society for competition among the Horticultural Societies of the Province, other than the Society donating the cup, as the committee may deem desirable; also rules regarding the methods of judging, said committee to consist of Mr. Hesson, of St. Catharines; Rev. A. H. Scott, of Perth; Mr. Vickers, of Barrie; Mr. Jaffray, of Galt; and Mr. Dockray, of Toronto."

REPORT OF COMMITTEE.

Your Committee appointed to revise the list of entries and conditions of the competition for the St. Catharines Cup, begs to report as follows:

Entries for Competition

Asters: 50 blooms—5 vases.
Gladioli: 50 spikes—10 vases.
Hydrangea: 3 spikes—1 vase.
Stocks: 12 spikes—3 vases.
Phlox Drummondi: 50 stalks, 5 vases.
Geraniums: 20 blooms—4 vases.
Pansies: 24 blooms.
Sweet Peas: 100 blooms—10 varieties.
Dahlias: 12 Show, 12 Decorative, 12 Cactus.
Antirrhinum: 12 spikes—6 varieties.
Perennial Phlox: 6 spikes in variety.

Entries must be comprised of contributions from the gardens of amateur members of the Society making the entry, and must be set up by an amateur.

Judging.

Variety: Best to count for 40% of total number of points.
Quality: Best to count for 40% of total number of points.
Arrangement: Best to count for 20% of total number of points.

All of which is respectfully submitted.

(Signed) GEORGE VICKERS,
for Committee.

THE SCIENCE AND PRACTICE OF PLANT PROPAGATION.

WM. HUNT, O. A. COLLEGE, GUELPH.

There is probably no feature of Floriculture more interesting, and, one might also add, more fascinating to the plant lover than that of plant propagation. The many and varied methods that can be made use of to assist and intensify the work

of Nature in the reproduction of species and types of plant life are of a most attractive and instructive character. It is very questionable whether scientific research in connection with the science of Plant Histology or of Plant Physiology, studies that deal with the minute structures and the life functions of plants, have been made use of to any great extent in connection with the practice of plant propagation. Doubtless, a study of these sciences gives to the plant-grower a keener and closer insight into the why and wherefore of results, and forms a valuable accessory to the other studies of plant life that have more direct bearing on this subject. At the same time, they cannot be considered altogether necessary in this respect. Not so, however, with the study of Ecology that deals with such factors as temperature, atmospheric and soil conditions, and the more general surroundings of plant life. The study also of structural Botany that treats of the structure and make-up of plants in a more general way than do the sciences of Plant Histology

Anthericum picturatum, showing young plants developing on the flower stem, a natural method of reproduction.

and Physiology, is also desirable. In fact, a knowledge of Ecology and structural Botany are of great service in securing the best possible results in the practice of plant propagation.

Ecology: We will first of all take the study of Ecology, or the environment of plant life in its natural state, as a necessary factor in the practice of plant propagation. Every experienced plant propagator knows the absolute necessity of giving plant cuttings and seeds somewhat similar conditions to those in which the plant grows naturally, more especially as regards temperature and atmospheric conditions, as well as the conditions of moisture or dryness of the material in which the cuttings or seeds are placed for root development or for germination. Take, for instance, the well-known foliage plant, the Coleus, a native of the tropical portions of Eastern Asia. It would be a waste of time and material to endeavor to take cuttings of these plants and to try to root them in a temperature of from 40° to 50° Fahr. The percentage of cuttings that would develop a root system, or strike

root—to use the customary technical phrase—would be decidedly small. Even should any cuttings root under these conditions, the length of time taken and the check given them by the unnatural conditions in which they are placed would make the undertaking a profitless one to the plant grower. But when cuttings of these plants are given the same, or even slightly more intense, conditions than those in which the plants grow naturally, viz.: a temperature of from 75° to 90°, and other conditions to correspond, from ninety to a hundred per cent of the cuttings will be certain to develop a good root system in a very short space of time. When we consider the thousands of these plants that are grown by florists for out-of-door planting in summer, the question of time is often of as much importance as is the question of quantity in plant propagation.

Then take a case in which, from the viewpoint of environment, conditions are the reverse of those just described. Secure some cuttings of plants that are indigenous to a country or surroundings where a temperate climate prevails, plants such as the carnation or chrysanthemum, or the antirrhinum, and similar semi-hardy plants, and endeavor to root or strike cuttings of these in the same temperature and conditions as mentioned for the Coleus. The results would be very discouraging, as probably ninety per cent. of the cuttings would die. Possibly not above five or ten per cent. of the cuttings would develop roots at all in a temperature of 90°, and these would be of such a weak, sickly nature that it would take a great deal of skill and care on the part of the plant grower to bring them into a normal and healthy condition of growth. Indeed, in this respect I feel justified, from observations of my own and the experience of others, in saying that the disease known as stem-rot in carnations—as well as many other plant diseases—originate in the cutting bed through the unnatural conditions given the cuttings during root development: combined, possibly with the weakness of vitality in the cutting, from the fact that the parent plant that supplied the cutting has also been grown under extreme and unnatural conditions. The old adage says, "Extremes are Dangerous." This truism applies nowhere, probably, with more force or reason that in connection with the unnatural conditions often given to plants under cultivation.

Another illustration bearing on the matter of environment in plant propagation may also be given, viz.: that of plants of an aquatic nature. These require a maximum of moisture and of shade to grow them to perfection. Who would think of endeavoring to root one of the rosettes or whorls of leaves of the *Cyperus alternifolia* (Umbrella Plant)—or Nile Grass as it is generally called—under the same conditions in which a carnation cutting would root successfully? The result would be disastrous to the Cyprus cutting. But put the same cutting into a dish of water and place it in a temperature of 90° to 100°, closely shaded from the sun, there would be no difficulty whatever in securing good root development and top growth. Indeed, these rosettes or whorls root readily in a saucer of water placed in a shady part of a warm room. The last mentioned method is following closely the natural manner of propagation, and gives somewhat the same environments and surroundings which these plants have where growing naturally in the low marshy grounds and river beds of Africa. Again, for instance, conditions directly opposite to those just mentioned would have to be given cuttings of plants of a succulent nature, such as Cactus, Agaves, and Aloes. These plants grow naturally under altogether different conditions to those already named, as regards soil, moisture, and atmospheric conditions. Growing as they do naturally in a dry atmosphere and on sandy, arid soil or rock chiefly, it would be fatal to attempt to propagate them under the same conditions as for the Nile Grass just mentioned. Numerous other instances

could be given, if necessary, to show the desirability of giving seeds and cuttings somewhat their natural conditions so as to ensure success in their propagation.

Acclimatization. The matter of the acclimatization may, possibly, be touched on here in connection with plant propagation. The nature of plants may doubtless be modified to some extent by growing them under changed conditions as regards temperature, etc., to what they are accustomed to naturally. It is impossible, however, to entirely change their nature so that they will succeed equally well under extreme conditions of all kinds, climatic and otherwise.

I have dwelt long enough on the subject of the environment of plant life to show that a study of the conditions of plant life as found in their natural surroundings is necessary, in order to be thoroughly successful in their propagation.

Paul Bruant Begonia, one of the many varieties which will not propagate from the leaf.

Botany. Then take the subject of Botany as applied to the structure of plants. As an illustration, I will make use of some specimens I have here (Geraniums, Coleus, etc.), showing the desirability of having a node or joint of the cutting inserted in the propagating material to ensure good root development. Nature seems to have provided in many plants that do not reproduce themselves readily from seed or otherwise this node or joint which contains a large proportion of actively growing cells that are great factors in the success of root development in cuttings. These specimens of bud or eye cuttings of geraniums showing root development clearly illustrate this fact. Many plants will develop roots at points on the stem between the nodes, but, as a rule, the roots developed are not as strong

or as numerous as those from near the node or joint. In many plants, such as the Carnation and Poinsettia, this node or joint is not as pronounced as in the specimens before shown. With plants of the last named, it is advisable to secure a small piece of the older wood called a heel for the base of the cuttings, so as to secure the desired root development. Indeed, the shoot or growth of a carnation, as usually taken for propagation, can scarcely be termed a cutting, as it is usually pulled from the parent stem or plant. In making the cutting, only the fibry matter, or bark taken from the older part of the plant in the pulling process, is removed, thus leaving the shoot or growth proper intact. The old-fashioned name of "piping" in vogue in England in my early days seems to me to be more

Stem cutting of Rubber Plant (*Ficus Elastica*), with incision made ready for mossing.

applicable to the partially hollow form of growth used for propagating the carnation than is the term "cutting." The stem of the Carnation is not as solid in construction as the Geranium or Coleus, being made up to a very large extent of the sheath or base of the leaves of the plant, hence the necessity of a different method of procedure in making the cutting. Many instances of like nature in the construction of plants as applied to plant propagation might be cited, such as propagation from rhizomes, stolons, or runners, divisions of root, as well as from leaf, stem and root cuttings, also by budding and grafting, but time and space will not permit me to enlarge on these methods.

Texture of Cutting. Then, again, the general texture of the growth of the cutting has to be taken into consideration. This is an important point in plant propagation, and one that can only be thoroughly learned by close observation and long experience. In the case of cuttings from soft wooded plants, such as Geran-

iums, Coleus, etc., it is advisable that the base of the cutting should be immediately below a node or joint and of medium texture, not too hard or woody or too sappy and soft. A healthy vigorous, fairly short-jointed terminal growth is necessary to secure the best results. A long-jointed, soft cutting seldom develops into a robust, symmetrical plant, without a great deal of skill and care being given to its culture. In the case of hard wood plants, such as hardy roses, etc., the same rule applies in a much less decided form. The instances I have mentioned, however, will probably suffice to show the desirability there is of a knowledge of plant construction in connection with the practice of plant propagation.

Stem cutting of Rubber Plant, with bandage of moss applied.

NATURE IN PLANT PROPAGATION: I have endeavored to show the necessity there is for the student of plant propagation to have a knowledge of the natural environment of plant life, also the desirability of knowing something of its structural form in connection with this subject. There is, however, one more important feature that cannot be overlooked. I have reference to the lessons that Nature itself teaches us in illustrating, as it undoubtedly does, so many of the different methods by which plant life is reproduced naturally. Science and art combined have, however, done much to assist and intensify these rules and laws of Nature. A few instances may be mentioned to illustrate this point.

Seeds: It is scarcely necessary to mention seeds as a natural medium of reproduction. The effects of self-seeding—especially of weed seeds—are often too much in evidence in most gardens to require any mention at all of seeds in respect to plant propagation.

Bulbs: We will first take the propagation of bulbs from the young bulbils. There are but very few bulbous-rooted plants that do not indicate very clearly this method of the natural reproduction of species and varieties. The specimens of hyacinths here shown with the young bulbils attached would clearly indicate to an observant plant-grower the natural method of the propagation of these plants. The more intense methods as now practised by bulb growers in Holland are clearly indicated by these illustrations, published in a recent issue of the *Gardener's Chronicle*. Where a comparatively few bulbils would be produced in a natural way from one mature hyacinth bulb, by the use of this method the number can be increased several hundred per cent. This method, we are told, was an accidental discovery made from a damaged bulb. The process made use of to

Rooted Stem cutting of Rubber Plant, eight weeks after the moss was applied.

induce the growth of these bulbils is to cut off the disc or root-producing base of the bulb, and then by scooping out and exposing a portion of the inner layers, and giving the bulb suitable surroundings, the young bulbils are produced in great quantities, as shown in the illustrations mentioned. Nature's method of reproduction would have been altogether too slow to supply the immense demand there is at the present time for these bulbs, without the aid of this more intense method of propagation.

The Gladiolus is another striking illustration of the natural reproduction of species. Not only does the old corm when planted produce one or more large corms, but it also produces at the same time numbers of cormels or young corms, which, if left to grow naturally, would in time produce flowering corms of themselves. Nature in the case of the Gladiolus has undoubtedly shown in a decided manner the natural laws and rules of the reproduction of species.

Leaf Propagation: Take again the Rex or ornamental leaved Begonia. The old style of propagating these plants as practised in my early days in horticulture, and as yet practised with a few varieties of Begonia, such as B. manicata, B. manicata aurea, B. imperialis, and other varieties, was to place a whole mature leaf of the plant, with the ribs or veins of the leaf downward, in close contact with the sand or cocoanut fibre on the cutting or propagating bench. This method was suggested by the natural method of reproduction of these plants, as found growing by plant collectors in their native haunts in the forests of South America. The mature or partially decayed leaves of the old plants falling on suitable soil where the plants were growing caused the production of the young plants from the forks or joints of the leaf veins naturally.

Begonia manicata aurea, grown from a whole leaf cutting.

This suggested to plant propagators the more intense method now practised of cutting the leaf into small sections as shown by these specimens, whereby the number of plants obtained from each leaf has been very considerably increased.

The *Bryophyllum calycinum* or Sprouting Leaf Plant is another very lucid illustration of plant reproduction by natural methods. The leaves of this plant, when mature, drop from the parent plant, and will in a short time under the most adverse conditions produce young plants at each intersection of the lobes of the leaves. Even when the leaves are laid on a moist brick or stone, or when pinned up against a post or on a curtain, they will, if the temperature and humidity of

the position is congenial, produce young plants very readily at the points of the leaf mentioned.

Stolons or Runners: One more instance of natural reproduction may be mentioned, viz, that of the Nephrolepis Bostoniensis, the well-known Boston Fern. The brown twine-like growths produced around the base of the fronds of these plants and that are often cut off as being unsightly, are really rhizomes or stolons, which, if left to grow, would in time produce young fronds or leaves that eventually constitute a young plant. These ferns illustrate most simply and clearly the natural method of the reproduction of this species of plants. Old plants of these ferns can be planted out in rich soil and the rhizomes or stolons allowed to grow and form young plants, after which they are severed from the parent and

Young plant of *Peperomia arifolia*, from a whole leaf cutting, showing the large parent leaf still attached.

grown as individual plants. If these fibre-like runners are pegged down in the soil around the old plant they will often root and produce young ones that can be removed later and grown on as a separate plant. It is a singular fact that these species of ferns—the Nephrolepis—do not reproduce from spores as readily at least, if at all, as most other ferns. Nature has, however, wisely provided this method of reproduction from stolons; a rule also that applies in various forms to other plants besides the species of ferns mentioned. The Strawberry plant may be cited as a notable instance in this respect. The *Saxifraga sarmentosa* or Spider Plant (Mother of Thousands), which, as its common name implies, is very prolific in the production of young plants on its strawberry-like runners or stolons, that give them the appearance of spiders hanging to a web, whence the name Spider Plant, is also another illustration of the natural propagation of plants.

The layering of plants and propagation from root and stem cuttings are also methods often suggested by the natural growth and habit of different plants.

One could go on almost indefinitely with instances of a like nature to those quoted to illustrate this subject. I feel certain, however, that sufficient has been said to show that Nature itself has been one of the greatest—if not the greatest—factor and teacher in the delightful art of plant propagation.

MATERIALS: In addition to the different forms and conditions of plant life required in the propagation of plants, the question of materials used to produce root development must be noticed. Sand is the main substance used in most instances for this purpose, more especially for germinating seeds and developing

Young plant of *Sansevieria zeylanica* (Bow-String Hemp Plant) from section of leaf. Original sectional cutting still attached to the plant after one year's growth.

Rhizomes or stolons of Boston Fern, showing growth of young fern attached.

roots on cuttings. Sand of a rather coarse nature is the best material for general purposes, as it permits of a free percolation of moisture, thus preventing stagnation, which would, in most cases, induce decay and rot. The sand should be free from foreign material, such as animal or vegetable matter, as these induce fungi, the last named being often very prevalent and destructive in the cutting bed. The nature of the sand used as regards texture should vary to suit the different requirements of the various kinds of cuttings.

Water and moss are other materials largely used as factors in plant propagation. Roots developed in water or moss are not, however, as a rule, of as hardy or vigorous a nature as those developed in sand, while soil itself does not allow as free drainage or percolation of moisture as sand to induce quick root action, the

last named factor—good drainage—being an important point in successful plant propagation.

In connection with the subject of materials to root cuttings in, I have recently made a test of some coral-reef powder or coral-reef sand that some bulbs from the West Indies were packed in. The material looked suitable for plant propagation. The test has been most satisfactory, every cutting of several species of plants tried has developed a splendid root system and in far less time than did similar cuttings placed in ordinary sand. I intend to make further experiments with this material, as I am inclined to think that many of the cuttings from plants of very fine texture, such as leaf cuttings of Begonias, etc., would root very readily in this coral-reef sand.

To be a successful plant propagator one must be of a closely observant turn. There is no feature of floriculture that demands a closer or more minute study of form, condition, and general environment of plant life than does the subject of plant propagation. It is one of the most interesting studies that an amateur plant lover having leisure time at his disposal can take up, as it brings into use so many varied types and forms of plant life, that make its study particularly attractive, pleasing and profitable.

INSECT AND BIRD ENEMIES OF GARDEN.

C. W. Nash, Toronto.

It seems to me, upon careful reflection, that the practice of the Science of Horticulture is inseparable from lots of trouble, and year after year these troubles get worse. I remember forty years ago, when first I began to make a garden for myself, having very few pests. When we look back to review the situation what changes have come about!

The first man who ever exi ted was a gardener. Now, as far as we know, that man had no trouble whatever; but in a little while he was given a wife, and then his troubles began. I do not mean to say that is a necessary sequence, but his troubles began because the lady stole apples—that seems to have been the only trouble there was. Look at what we have to contend with nowadays, in this godly City of Toronto! People steal everything we can grow, and it is very largely the direct descendants of Eve who do that. Not only do the people steal the flowers we grow, but the great City Council takes our property as well. No sooner does a man make a garden than the property is expropriated. So it begins with the stealing of the flowers and ends with your losing your land; and in the meantime, besides that, you are fighting insects morning, noon and night, and every year brings more and more vicious ones.

I cannot this afternoon go over the whole field of the numerous insects, but will mention some of the latest discovered, giving methods of combatting them, which may be of assistance to you.

I have no doubt, all of you have suffered more or less from that injurious stalk borer, as it is called. There are several species of these moths, but the two that I find most injurious are a general feeder, known as Gortyna Cataphracta, and another the Aquilegia borer (Gortyna) purpurifadia, and another one which bores into the crown of the roots of Aquilegia. The damage done by these creatures is noticeable, of course, because where they take possession of a stalk it immediately wilts, and the first thing you know, one of the strongest branches has gone.

In the case of the Aquilegia borer, you find first that the plants begin to look rather sickly, and afterwards die. If you take hold of the main part of the stem you will find they break away from the crown, and a little investigation will show you that either the borer is in the crown of the plant, or perhaps will be in the chrysalis stage in the cell near by. These creatures are difficult to handle, if you propose to attack each one singly, because the mischief is done before you find it out, but, after close investigation, I discovered sufficient of their life history to enable us to do something.

Chrysanthemum. Mary Poulton.

In the first place, the eggs of these moths are deposited in the autumn. The moths emerge in September, and the eggs are deposited shortly afterwards, either upon the stems of weeds or shrubs of some sort. The little larvae hatch in the spring. They do not at first go into the stems, but mine in the leaves of a great variety of plants, so that if in examining your garden you find that any of your plants are affected with a small caterpillar working between the two outside layers of the leaf, you may be sure it is very injurious, and in such case, of course, destroy them at once.

After they have obtained a certain amount of development they will leave that situation and go off to find a suitable plant into which they can bore. They ascend the stem from three inches up to about four feet, and bore a hole, eating into the centre, and, as you know, that stem wilts and dies.

The eggs being deposited, as I say, upon the stems of weeds in the autumn, it is a good plan where your garden is affected seriously by these insects, to clean up everything in the fall and burn it. On the other hand, you may, sometimes, if eggs have been deposited about the garden, prevent the larvae getting into valuable plants by putting a board around the bed and keeping it covered from June to the end of July with a sticky substance.

One caterpillar alone may cause the destruction of two or three plants, or two or three stems, as the case may be. They do not, as a rule, travel more than 14 to 20 feet in going from one stem to another.

That is the life history of the creature that has given experimenters considerable trouble to work out. The only thing to suggest is, keep your land clean in the autumn and watch for leaf miners in the spring.

The past year I have had complaints from almost all over the country of the abundance of our old enemy the white grub and wire worm. Gardens and grain crops have suffered severely. To deal with it is a very serious matter. They live beneath the surface, feed upon roots and never show themselves above at all, so it is difficult to get at them. We have very largely brought this plague upon ourselves by destroying certain classes of birds, which were adapted by Nature to feed upon these pests and keep them in check, and not birds alone, but a great many small quadrupeds consider a nice, fat, juicy grub as a very delicious morsel. In some parts of the world human beings eat them and consider them nice, but I am willing to take their word for it.

In the neighborhood of Jordan, and through there, I was told last year the loss to tomato growers was very serious, and in both cereal and pasture lands a great deal of injury was done. Where old sod is allowed to remain for several years the land is sure to be infested, and under these conditions, white grubs and wire worms are certain to exist. That being the case, if you want to fight the white grub and wire worm, avoid keeping down your land in sod for any very lengthy period, but if it happens that you have had land in sod and you want to break it up, do it in the autumn; as late in the autumn as you possibly can. The effect of this will be to throw up the grubs upon the surface when the days are so chilly that they will not have energy enough to go down sufficiently far to protect themselves from the frost: furthermore, there is a peculiarity about these creatures, if they are permitted to form the cells in which they can pupate, and these cells are undisturbed, the insects are able to resist any degree of cold; but, on the other hand, if their cell is broken or destroyed, the insects will be killed by even a very few degrees of frost. The cell itself is but a thin shell of earth, smooth on the inside, but to look at it you can see nothing whatever that is likely to afford the creature protection from the cold, but, strange to say, if that is unbroken, it will live throughout the winter most safely. On a small scale, it is sometimes possible to control these insects. Thus, if small patches of grass on a lawn are infected, make a convenient sized frame of rough boards and cover it with paper, put this frame over an infested spot. Inside the frame place a saucer containing an ounce or so of bi-sulphide of carbon. This fluid very quickly evaporates, and the gas given off being heavier than atmospheric air, will sink down, permeate the soil and destroy all insect life compelled to breath it. When using bi-sulphide of carbon, be careful not to bring it near fire, as the gas given off is very explosive.

But our great source of relief against these creatures will have to come from the birds, which are specially adapted to feed upon them; crows, robins, meadow-larks, or birds of that class. Unfortunately, the robin, at a certain period of the year, (that is just when the cherries are ripe) is very apt to make himself objectionable to the grower of small fruits, and so the people shoot them off to altogether too great an extent. Now, the question is, is it of more importance to the country generally that we should grow a few cherries or strawberries, or that this great and growing evil, the underground insect, be permitted to increase? The main-

Carnation. White House.

tenance of our market gardens, of our pasture lands, and of our grain crops, is of the utmost importance to the Province of Ontario, and, unless you can keep a proper proportion of these birds, I see no way by which we can keep down the underground insects, unless we entirely change our method of agriculture, and that seems to me impossible. In many parts of Ontario, pasture lands are very large and men are feeding cattle altogether upon them. They do not want to break up these lands, or change their method of farming; in other parts of Ontario they are obliged to keep their lands under sod because they are so rocky, but the white grub and wire worm are now working beneath this sod to such an extent

that you can often roll it as if cut with a turfing knife, and this absolutely puts the farmer out of business. It is a question whether or not it would not be very much better for us to sacrifice some of our small fruit crop, if not all of it, and maintain the great agricultural industry of the country.

I have noticed of late that there is a tendency on the part of those who are advocating the adoption of active measures for the control of our insect pests, to make the remedies more and more complicated. If a market gardener now, wants to grow vegetables he has to have a drug store out in his back shed somewhere, and a lot of appliances besides. The result is that they get confused, or they get disgusted and will not do anything. If people would take the trouble to study a little the structure of the insect that they find destroying any particular crop, and just charge their memory with a few simple remedies, and apply these at the proper time, they would find it was not necessary to use complicated mixtures, and they would be more successful in protecting their crops.

All the insects that we find in our fields may be divided into two classes—those which masticate their food, and those which live by sucking juices from the plants. It is impossible to destroy the insect that sucks sap from the plant with any stomach poison. A man told me his plants had suffered very much from plant lice: I said, "Why do you not look after them?" He said he did. "What did you do?" "Sprayed them with Paris Green." "How in the world did you expect to get Paris Green into plant sap?" He did not understand the fact that these insects puncture the outer skin of the plants and, therefore, Paris Green would be of no avail against them. To get at these insects you must use a contact irritant, or something that will put a film over them.

Now, I have found that one class of soap is infallible in these cases, that is the soap called English Soft Soap. I have used it for forty years myself, and I find that it will destroy any class of insects. The only objection is that it is rather expensive. I pay 20 cents a pound, retail. I am told that it is made from linseed oil. This linseed oil is mixed with caustic potash in the proportion of two pounds of potash to one gallon of linseed oil, which makes the soap. You can weaken that to about 12 to 15 gallons by mixing it up until you get it thin enough to spray, and I have never found that to fail in the case of any insect whatever.

Some of the American Entomologists have got on a somewhat similar remedy. I have never tried their formula, which is one pound of linseed oil, one pound of hard soap and twelve gallons of water, and they find it a perfect remedy for all the scale insects, even for the oyster shell scale while in the egg or larvae stage, and that alone is quite sufficient to destroy any insect which requires a contact poison.

I give these particulars without going into any of the many other formulas advocated, because I do not think people need charge their memories with more.

With regard to the other class of insects that require stomach poison: arsenate of lead is undoubtedly the nicest thing, in the proportion of two or three pounds to forty gallons of water. There is, however, a little more to be considered in connection with the insects of that class, as, for instance, the Tussock Moth.

This first made its appearance in Toronto in 1887, in the Allan Gardens here. I called the attention of our wise City Fathers to the fact that this insect had appeared and they had better look after it. They gave me to understand that they knew more than I did and that I should mind my own business. Not until the last few years were systematic efforts made to resist it. I was very much amused at some of the things done. They usually waited until the caterpillars had ceased feeding, then they would turn on their full batteries of Paris Green and spray and

soap the trees all over. They would spend $3,000 to $5,000 a year on spraying trees after the caterpillar had ceased to feed. Of late, however, men who have some better knowledge of the situation have got control of it, and they now understand that the proper time to spray to destroy the Tussock Moth is early in the year when the young caterpillars are beginning to feed. A very little poison then will destroy them. In the case of that particular insect, however, there is another remedy which is the most efficacious of all, and that is to get the masses off the trees. It is too bad that the country should suffer the loss it incurs every year through the carelessness of the people of this City. These insects are now spread all through the country and are damaging orchards and shade trees everywhere.

The surest remedy is to take the egg masses from the trees and destroy them. I have heard it said recently that that is wrong, because if you do that, you destroy the parasites, which would have a tendency to keep these things in check, through the ordinary process of Nature. I find that the three most important species of these parasites emerge in the autumn, before the end of September for the most part. Usually, from 400 or 500 cocoons there will be, perhaps a dozen in the following spring, but the great majority emerge during September; therefore, if the gathering of these cocoons is not begun before the end of that month the few parasites that remain will amount to little or nothing—so that the collection of these eggs, added to Natures checks, will, I believe, if it is persisted in, bring the Tussock Moth under control. We never, however, shall see the end of the Tussock Moth in this country, as our chance of getting rid of them entirely has gone by.

There are very few birds that will destroy the Tussock Moth, The cuckoo and the shrike, perhaps will: I think, in all probability they both do. I have never found any traces of them in their stomachs, but, as they both eat hairy caterpillars, it is probable that they eat Tussock Moths too. However, birds are scarcely a factor in dealing with the Tussock Moth, but, in other respects, it is to the birds that we should look, to maintain the balance in Nature between plant and insect life. If we had a sufficiency of birds about our cultivated lands and orchards there would be little loss from insects.

Unfortunately, Canada is unusually placed with regard to birds. This is a forest country, consequently its fauna were adapted to forest conditions. As the forest has been cleared away, the birds naturally enough, have receded, and live in the few remaining trees that we have. Where orchards have been made, these, of course, take the place of the forest, and certain classes of birds take up their abode there, if therefore, we propose to encourage birds to live amongst us we must provide them with shelter and trees. There is food enough for them and to spare in all these plagues that we have—something else is necessary, and that is trees. We shall have to plant trees along the sides of our streams, all over our waste lands, for too many reasons for us to go into to-day, but when that is done we shall find that birds will again take up their abode in our neighborhood and they will rid us of the insects.

F. G. H. Pattinson: In the Niagara District, birds have greatly increased. Fruit growers have given up shooting robins and welcome their presence. They are planting rows of outside cherry trees for their use.

C. W. Nash: I remember a remark of a man in the Niagara District two years ago: He said, "I lost six hundred tomato plants by the cut worm after the market for young plants had closed." I said, "Why don't you have robins?" "How can I have robins," he said, "When a fool over here shoots 300 or 400 of them every season?"

G. L. Garrett: Is there not a provision in the "Insectivorous Birds' Act," permitting persons to shoot robins during the fruit season?

C. W. Nash: There is such a provision, and also a very strong feeling throughout the country that that exception should be stricken out, so that the general law can be enforced for the protection of that bird. As I pointed out just now, it is very much more important to us to maintain agricultural industry than protect a few growers of cherries.

Besides the birds, however, there are a great many other forms of life that we can encourage and have about us that would help very materially in reducing our insect pests. We are too prone altogether, in this country, to disregard the little things there are about us. We seem to imagine that we ourselves do everything, and that Nature is not doing, and is not capable of doing anything.

Now, in Europe, and even in the United States, more especially in the Eastern States, they pay pretty close attention to these things, and they find there that

Play Grounds.

toads are a very important factor in the reduction of insect life. It is a marvellous thing to watch the despised, ugly toad going about its regular business. The quantity of insects destroyed by it every day going around the garden is almost incredible.

We have no tortoise in this country that would live in gardens. None of our turtles feed out of water at all. Snakes, however, are a more or less important factor, but creatures like the toad may almost be said to be semi-domestic. Refrain from injuring them, and they will take up their residence in gardens in large numbers and will go out every night and feed upon insects.

It is well worth your while some evening in summer to watch a toad going about his business. Let me describe its methods to you. Watch in the evenings, when he comes out from the cool damp place in the soil where he has spent the day, and see what he does. First he will look around and see what the weather is going to be like, and, if it suits him, he will start off on his rounds. He is regular in his

habits. You know there is a peculiar dignity about a toad that always reminds you of an alderman. You never see a toad smile. The lower the intellect of a creature the less it laughs. The toad then marches off to the nearest place of refreshment, a post, a bush or a stump, or something of that kind, to which he knows insects resort, and then you see him place himself in that sort of attitude we used to assume when boys and girls: "Shut your eyes and open your mouth, and see what God will send you." Presently an ant walks up the post, there is a quick motion and that ant has gone to join the great majority. Another one passes up, there is another quick movement, and that insect has gone also. You might look for a long time and you would not see how it is done. A toad's tongue is highly specialized, differing from any other animal's. The tongue is hung in front and wags backward.

And so the toad goes round his night's work from one place of refreshment to another until, as daylight comes, like a City representative again, he goes home full, but it is full of insects which would have done an enormous amount of mischief. Therefore, he has spent his night usefully. His good work goes on day after day, and yet we despise him. If a man sees him, he kicks him out of the way. Another man says, "Do not touch him, he gives you warts." He will not give you warts; he needs all his warts in his own business. This sort of remark and others are said about the inoffensive toad, simply because he is not beautiful. If we were judged by our beauty, how would we come out? Even the most insignificant forms of life have their part to play in Nature, all of them assist in carrying out that most important of Nature's laws, the maintenance of the balance between all forms of life; and where we interfere we invariably do it to our own injury.

The President: We should express our sympathy with Mr. H. B. Cowan, our Treasurer and his wife, owing to the loss of their child. I would move that we send a letter to Mr. Cowan expressing our sympathy.

Rev. A. H. Scott: I second that motion.

The Secretary was instructed to send Mr. Cowan a letter of condolence.

On motion of Major Snelgrove, Messrs. A. O. Jeffrey, London, and Colonel R. E. Kent, Kingston, were appointed auditors for 1911.

A grant of $10.00 was also made to the Sick Children's Hospital, and a hearty vote of thanks was passed to the Mayor and City of Toronto, for the use of the Hall.

The meeting then adjourned.

THE ONTARIO HORTICULTURAL ASSOCIATION IN ITS RELATION TO THE AMERICAN CIVIC ASSOCIATION.

Rev. A. H. Scott, M.A., Perth.

Terms and Definitions: As Ontario is part of America, the whole must be greater than its part. As Horticulture is larger than any branch of Horticulture, the conception contained in the aims and ideals of the American Civic Association aspires to be larger than the idea for which the Ontario Horticultural Association stands.

We place those subjects that associate themselves with the growing of fruits under the scientific horticultural head of Pomology.

Those which relate themselves to vegetables we classify under the term Olericulture.

The art and practice of flower growing and ornamentation, horticulturists know as Floriculture.

That attainment for which the American Civic Association stands, the taking of a city, a town, a village, or a piece of country, with a view to making it usefully beautiful, we speak of in horticultural parlance as Nature Architecture, or Civic Improvement or Landscape Gardening.

Our Associations Past and Present: Naturally the American Civic Association and the Ontario Horticultural Association cultivate closer relations. Both are young and virile. The former dates its organization from June, 1904, when the American League for Civic improvement amalgamated with the American Park and Out-Door Art Association in St. Louis. For four successive years, after the Consolidated organization began work, annual conventions were held in Cleveland, Milwaukee, Providence, and Pittsburgh. We had a report, which appeared in our last Horticultural Annual from the Cincinnati convention which ran over four days, in November, 1909. This year's Annual bears witness to the courtesies that

Photo by H. J. McKay

One of the 175 Flower Beds at Street Corners, Windsor, Ont.

pass between our American neighbors and ourselves, when we received the Secretary of the American Civic Association in the City Hall, Toronto, in November last, and gave part of an evening to him for his illustrated lecture on Civic Improvement.

The Aims of the Civics and Ourselves: Canadians join with Americans right heartily in the objects outlined in the Civic Association's Constitution. We believe in the cultivation of higher ideals of civic life and beauty, in Ontario, in the Dominion of Canada, and throughout the Western world. We are one with our friends to the south of us in seeking the promotion of city, town, and neighborhood improvement, in the preservation and development of landscape, and in the advancement of outdoor art. And when the wide purposes set forth in the American Civic Association's ideal are analyzed, we to the north of the boundary line, are side by side in endeavor, with our Civic friends. We earnestly desire to make living conditions clean, healthful and attractive; to extend the making of public parks; to promote the opening of gardens and playgrounds for children, and recreation centres for adults; to abate public nuisances; to make the buildings

and the surroundings of schools, railway stations and factories attractive; to protect trees and encourage intelligent tree planting; to preserve great scenic wonders and to multiply the attractions of our great countries on these American continents by sectioning off large portions of the yet unsettled territory for the scenic delectation of the millions who are turning our way.

The Representatives From Canada to Washington: The Convention of the Ontario Horticultural Association of 1910, chose its Secretary and myself to represent the Province at the Washington gathering of the Civic Association. Toronto, afterward added to our number through the appointment of Mr. James Wilson, Park Commissioner. The American people with whom we were in touch during the period of the Washington Convention welcomed us to the Capital City with much cordiality and paid us thoughtful attention while we remained with them. Mr. J. Lockie Wilson, had been assigned a place on the programme, and when the time came to make his presentations, no one appearing upon the platform during the session, which called for his subject, was received with greater heartiness than he. The Executive of the Convention opened a place on the programme that same afternoon for brief remarks from the other delegate from the Ontario Association, but the writer thought that the Secretary had covered the requirements of the session, sufficiently, and, as the programme was crowded and there was scope for nothing more than pleasantry and preliminary, as a substitute for a message, he thought it best to defer further presentation from Canada to another time. When the hour for the election of officers had arrived the Convention did itself the pleasure, and Canada the honor, of proposing and electing Mr. J. Lockie Wilson, Secretary of our Association, as a Vice-President of the Civic Association for the current year.

The Officials and the Official Greeting: Mr. J. Horace McFarland, of Harrisburg, Pa., the President of the American Civic Association, had associated with him on the executive last year: a 1st Vice-President, five additional Vice-Presidents, a Secretary, a Treasurer, and a Board of eighteen besides. Six of the officers were women. Both men and women were representative and distinguished in their respective districts of the United States. Not until this year was official place given to any one outside of the Republic. Canada had special recognition at Washington, through the calling of one from the Ontario delegation to participate on the Executive Board. A very hearty greeting was extended to the Convention on the forenoon of the 14th of December, by the Hon. Henry McFarland, who, because of his long acquaintance with all large efforts for the permanent good of the City of Washington, was able to represent the multitudinous civic interests, not only of the city itself, but also of the District of Columbia.

The Three Forenoon Sessions: After the official greeting on Wednesday forenoon, the first on the programme was Hon. Wm. Dudley Foulke, of Indiana, who spoke on the National Municipal League. He was followed by Mrs. Edward W. Biddle, of Pennsylvania, who spoke with dignity and effectiveness upon the General Federation of Women's Clubs. City Engineer Ford, of Hartford, Conn., dealt with the Rochester City Planning Conference. Mr. Charles Mulford Robinson, turned the attention of the Convention to the British Metropolis as he treated upon the London Town Planning Conference. The Secretary of the American Federation of Arts, Mr. F. D. Millet, of Washington, discoursed on the promotion of Art Exhibits and the Development of the Aesthetic. Mr. J. L. Sewall, of Boston, the Executive Secretary, of "Boston—1915," told the Convention that a vast majority of the people of Boston desire to have the best possible city, and that the purpose of "Boston—1915," is to stimulate and organize a spirit of co-operation

by studying, through conferences of experts, the city's immediate and future needs, by deciding, through a representative central body or directorate, which of those needs should enlist immediate attention, and by bringing through an effective organization intelligent and widespread support to the projects thus endorsed. The Minister from Cuba to the United States concluded the proceedings of the first forenoon by delivering an address on the Sociological aspect of Cuban Municipalities.

The first part of the forenoon of the second day was devoted to an examination of the year's work as conducted under the auspices of the Association. A report by Secretary Watrous, was received. Treasurer Howland, Publisher of the Outlook, gave the financial standing of the Association. The election of officers followed. Then, under the presidency of F. L. Ford, of Hartford, the Convention heard, in the first place a paper on "What is your City Ideal?" by Secretary Woodruff, of the National Municipal League; and, in the next place, a treatment of "Washington, the Capital," by President Thomas Nelson Page, of the Society of Fine Arts, which, to the writer's mind, was the most impressive presentation on the programme of the Convention.

There was no falling off in numbers and no diminution of interest at the morning session of the third and closing day. Civic Co-operation toward a clean City was advocated by Mrs. Crane, of Michigan. One of the Corporation Counsel, of the City of Chicago, discussed the legal control of the Billboard. A member of the Chamber of Commerce, of Cleveland, handled the smoke nuisance. An unique subject of the Convention was treated on the third forenoon. Nothing during this session, bearing upon home and neighborhood improvement, received more skilful handling than the racy story, by Miss Zona Gale, of Wisconsin, on "Friendship Village Improvement Sodality."

The Afternoons of the Convention: The afternoons were full of variety. Mrs. Biddle, President of the Federation of Pennsylvania Women, presided on the first afternoon. Four women were down on the programme, and every one did well. Mrs. Bailey, of Ohio, dealt with Junior Civic Leagues. Mrs. Stewart, of New Jersey, with the National Plant, Flower and Fruit Guild, and Mrs. Williams, of Washington with the beautifying and making sanitary of our Waterways. Miss Louise Klein Miller, Curator of School Gardens, of Cleveland, gave a stereopticon address on Schools as radiating centres for Civic Improvement. With the stereopticon too, Mr. David Fairchild, of the Bureau of Plant Industry in the Department of Agriculture, dealt with new plants for the people's gardens. Assistant Secretary Adams, of the Municipal Art Commission, of New York City, was last on the programme in answering the question "Are American Communities becoming more beautiful?" Immediately preceding Mr. Adams on the programme was Mr. Lockie Wilson, whose subject was Canadian Horticultural Association, concerning whose reception mention has already been made.

Thursday afternoon's gathering was presided over by the Hon. Franklin MacVeagh, Secretary of the Treasury, and was devoted exclusively to City Planning; Messrs Olmsted, of the Commission of Fine Arts, Massachusetts, Brunner, President of the New York Chapter American Institute of Architects, Nolen, of Cambridge, Mass., Geo. B. Dealey, of the Texas "Dallas News," and H. J. Howland, of the Outlook, dealt with various phases of the subject.

Special interest centered on the treatment of the subject which was fixed for the third afternoon, The Typhoid Fly. Chief Entomologist Howard, of the Agricultural Department, introduced the subject. Dr. Woods Hutchison, of New York, supported him. Editor Boughner, of the Minneapolis Tribune, followed. The

climax of interest was left to the close, when Secretary Watrous, through a display of kaleidoscopic pictures, illustrated the habits of the typhoid fly.

The Evenings and Extras at Washington: The evening of opening day was the one on which the Convention met in third session. Congressman Ransdall, President of National Rivers and Harbors Congress, was in the chair. Two subjects engaged the attention of the Convention. The President of the American Civic Association chose this evening to make his principal deliverance. His subject was interrogative form, "Are State Parks Worth While?" The answer was returned in the affirmative with the addendum, that parks must be accessible to the people, must be maintained for their use and recreation, and should be controlled by Federal regulations that are rendered more simple and more clearly apprehended than those which are operative at present. Mr. William Ellicott with illustrative appliances shared the evening with President McFarland by giving an address on Forests as Pleasure Parks. He pictured the forests of Germany and France and pleaded the claims of a great national forest park in the environ of Washington. Whilst some in the audience, after the lecture, were telling of the obstacles in the way for the carrying out of the forest proposals, certain invitations and suggestions were proffered by the Canadian delegation in anticipation of the time when Americans and Europeans and Orientals will be leisurely enjoying themselves upon the forest and mountain parks that are to be generously distributed over those magnificent northern areas that lie between the Atlantic washed Provinces on the East and the Pacific slopes in the distant West.

Opportunity was given between the day sessions to those who wished to avail themselves of the pleasure to have luncheon at the New Ebbitt, one of the foremost hotels of Washington, for business men and political travellers. Advantage was taken of the noon hour, and in a room sectioned off for the occasion the delegates from various States, and from Canada, banqueted, asked questions, had questions answered, and enjoyed a free and easy time.

Then on the evening of the last Convention day there was the acceptance of the sumptuous hospitalities offered by one of the palatial homes in the finest residential district of Washington. Not so long ago, what is now Florida Avenue was away in the country. But now the charming area along which this avenue runs is built upon by those who have succeeded in attracting to their palaces the Ambassadors from other lands, and those who hold social position with them. One of the best known homes in this inviting district is that of ex-Senator Henderson. The Hon. Gentleman and his estimable lady were all that could be looked for as host and hostess at the reception to the delegates of the American Civic Association. Judges from the Supreme Court, Senators and Congressmen, and many of the elite of Washington shared with the delegates in a most delightful evening.

The Event of the Convention Season: The eventful evening of the Convention season was the evening of the second day, when the delegates to the American Civic Association united with the delegates to the International Conference under the auspices of the American Society for judicial settlement of International disputes.

Willard's, at the corner of Pennsylvania Avenue and 14th Street, is identified with the history of Washington. Before the breaking out of the Civil War, and during its continuance, Willard's was the great house of entertainment. The new Willard, on the old corner and extending back to F. Street, is one of the finest hotels on the continent. The new Willard Hotel management, set apart the Mezzanine Room for registration, and the Rest Room for the sessions of the American Civic Association. The New Willard was also headquarters for the members of

the Association during their stay in the Capital. Housed with them in the same hotel were the members of the Conference on International Disputes. It was arranged that on Thursday evening there should be a joint meeting in the Red Room of the New Willard. Every corner was filled. A British born Canadian was in the chair, James Brown Scott, solicitor to the Department of the Secretary of State. Cardinal Gibbons of Baltimore invoked a blessing. The Mexican Ambassador delivered the first address. The Hon. Elihu Root was the next speaker. He was followed by Justice Riddell, of Canada, on the international relations between the U. S. and the Dominion. President Wheeler, of the University of California, came after Judge Riddell, and following him was former Secretary of State, the Hon. John W. Foster, who, in a remarkably able presentation, gave answer affirmatively to the question: "Were the questions involved in the foreign wars of the U.S. of such a nature that they could have been submitted to arbitration or settled without recourse to war?" Then came the climax of the evening's order when Andrew Carnegie, who had a few hours before set apart ten millions of dollars towards the furthering of the aims of the International Conference on peace, addressed the united assemblage on "The moral issue in war." So charmed were the Canadian delegates from the Ontario Association with the effect of this united meeting that, before leaving for home, they devoted a portion of a second evening in the building of the Pan-American Union to the portion of the international programme at which the Hon. Joseph H. Choate, formerly U. S. Ambassador to Great Britain, and Francis W. Hirst, editor of the Economist, London, were the speakers.

THE TENDENCY OF ALL THIS: There should be from all this an enlarging and uplifting tendency. The representatives of the choicest department of activity from the Banner Province of the most promising young nation under the sun: the representatives of progress and improvement gathered from all points of the greatest Republic in the world; along with representatives from two hemispheres, backed by good intention and millions of money, re-publishing the note of peace that was dominant in the chorus that Heaven's messengers sang on the first Christmas—what but good, both in the conference and in the outlook, could come from a week's gathering together of such persons? Until the angel come, with key and chain, to lay hold on the dragon, there may not be universal good-will among men. As long as the curse of sin remains, there may be something short of perfect beautifying, in the place where man has his pre- at home. Whilst human imperfection obtains we may not reach the ideal in the intensive handling of the soil. Still the movement, of which these sentences treat, has the right outlook. It makes for conditions that we hold in anticipation. For there is a good time coming when men shall beat their swords into plow-shares and their spears into pruning-hooks, when nation shall not lift up sword against nation, neither shall people learn war any more. We look forward to the time when there shall be no fallen branches in the valleys, nor broken boughs by the rivers, when the Creator shall glorify Himself in the forest. It is true, because of a golden era approaching, it is written, "Ye shall go out with joy and be led forth with peace: the mountains and the hills shall break forth before you into singing, and all the trees of the field shall clap their hands. Instead of the thorn, shall come up the fir-tree, and instead of the brier shall come up the myrtle tree: and it shall be to the Lord for a name, for an everlasting sign that shall not be cut off."

DELEGATES TO THE HORTICULTURAL CONVENTION.

Anderson, James, Guelph.
Anderson, James, Hamilton.
Armstrong, A. T., Millbrook.

Bennett, J. H., Barrie.
Blacklock, Miss M. E., Toronto.
Blair, Prof., Macdonald College, Que.
Bowden, F. P., Vankleek Hill.
Bowes, G. S., Milton.
Bowman, J. H. Elmira.
Brown, Geo., Galt.
Brown, C. D., Walkerville.
Burgoyne, W. B., St. Catharines.
Burgoyne, Mrs., St. Catharines.

Cameron, Roderick, Toronto.
Cavers, J., Oakville.
Clark, H. J., Belleville.
Cluff, A. F., Seaforth.
Cook, H. Frank, Simcoe.
Cottle, T., Clinton.

David, G. H., Clinton.
Davis, Robert, Hespeler.
Davis, Mrs., Hespeler.
Davis, Vernon J., Dunnville.
Denton, D., Cobourg.
Diamond, W. Jeffers, Belleville.
Dickson, J. M., Toronto.
Dockray, T. D., Toronto.

Elliott, R., Brantford.
Elmslie, A. G., Galt.

Firth, Chris, Durham.
Fletcher, Rev. J., Whitby.
Forbes, Dr. J. M., Caledonia.
Forbes, Mrs., Caledonia.
Ford, J. C., Oakville.
Foreman, Henry, Collingwood.

Gammage, W. W., London,
Graham, A. W., St. Thomas.
Green, G. de W., Toronto.
Groff, H. H., Simcoe.

Hamilton, L. H., Toronto.
Harris, John, Belleville.
Harrison, R. A., Dunnville.
Hartry, H. F., Seaforth.
Hesson, C. A., St. Catharines.
Hume, D., Toronto.
Hunt, Wm., O. A. C., Guelph.
Hurlburt, J. N., Thornbury.
Hutt, Prof. H. L., O. A. C., Guelph.
Hutt, Mrs., Guelph.
Hyatt, J. L., Windsor.

Jaffray, J. P., Galt.
Jardine, Miss, Toronto.
Jeffrey, A. O., London.
Jury, J. H. H., Bowmanville.

Keith, W. M., Smith's Falls.
Kneeshaw, J., Hamilton.

Lamb, F. H., Hamilton.
Lane, Edward, Galt.
Luesing, Daniel, Hanover.

McCallum, J. A., Gladstone.
McCulloch, J. O., Hamilton.
MacKendrick, W .G., Toronto.
McNeill, Alex., Ottawa.
McKay, H. J., Windsor.
McTaggart, M. D., Clinton.
Macoun, Prof. C. E. F., Ottawa.
Mode, D. G., Vankleek Hill.
Monteith, J. D., Stratford.
Moorcraft, J. S., Bowmanville.
Morgan, A. J., London.
Moyle, Miss, Toronto.
Moyle, H., Richmond Hill.

Nash, C. W., Toronto.

Ogilvie, James, Hamilton.
Outram, F., Port Hope.

Perrin, Frank, Milton.
Pring, W. A., London.

Rennie, Simpson, Toronto.
Reynolds, John T. J., Windsor.
Richings, Mrs. E., St. Catharines.
Roberts, A. B., Cobourg.
Ross, Walter J., Picton.
Ross, Wm., Guelph.
Ruppel, C. P., Elmira.

Scheifele, Chris., Waterloo.
Scott, Rev. A. H., Perth.
Scott, Principal, Toronto.
Shantz, Cleason, Waterloo.
Snelgrove, H. J., Toronto.
Starr, Mrs. E. E., Whitby.

Taylor, Henry, Perth.
Taylor, J. W., Walkerville.
Tebbs, Geo. W., Hespeler.
Thom, W. A., Collingwood.
Tomkins, W. H., Oshawa.

Vickers, Geo., Barrie.

Watrous Rich. B., Washington, D.C.
Weber, J. A., Hamilton.
Wedden, Harry, Belleville.
Wedden, S. J., Belleville.
Whyte, R. B., Ottawa.
Wilson, J. Lockie, Toronto.
Wilson, James, Toronto.
Wilson, Robert, Thornbury.
Wood, R. S., Galt.
Wright, David, Hespeler.

Flowers in an Ottawa Garden. Photo by R. B. Whyte.

Foxgloves. Photo by R. B. Whyte.

ACTUAL RECEIPTS AND EXPENDITURE OF SOCIETIES IN 1910.

Societies.	Members' fees.	Legislative grant.	Municipal grants and donations.	Gate receipts at exhibitions.	Total actual receipts.	For exhibitions.	For seeds, bulbs and plants.	Lectures and periodicals.	Officers' salaries.	Total actual expenditure.
	$	$	$	$	$	$	$	$	$	$
Amherstburg	111	91	45	.....	280	.....	220	.....	.....	302
Barrie	202	198	167	45	766	261	228	.....	35	635
Belleville	115	115	.....	.....	236	40	163	.....	50	310
Bowmanville	88	105	.....	.....	193	.....	132	44	.....	177
Brampton	158	158	.....	.....	316	.....	198	78	2	300
Brantford	157	203	187	.....	527	111	85	81	60	426
Caledonia	63	63	.....	.....	127	.....	28	2	.....	39
Cardinal	63	73	.....	11	160	17	128	1	.....	149
Cayuga	65	113	.....	.....	184	41	66	.....	.....	146
Clifford	111	199	26	124	604	290	.....	.....	30	533
Clinton	116	115	25	.....	256	116	58	.....	10	198
Cobourg	105	96	.....	.....	202	.....	105	49	.....	182
Collingwood	95	104	.....	.....	260	178	.....	41	.....	313
Durham	61	60	.....	.....	169	.....	128	2	25	168
Elmira	64	80	.....	25	180	61	57	32	10	185
Elora and Salem	52	42	.....	.....	102	68	7	.....	5	101
Fergus	62	62	.....	11	145	76	.....	.....	15	127
Galt	200	245	211	30	686	251	86	20	55	542
Goderich	63	75	45	.....	180	.....	85	34	20	147
Grimsby	85	90	.....	.....	173	.....	61	52	.....	134
Guelph	150	145	131	.....	418	.....	228	85	.....	396
Haileybury	98	75	137	62	370	255	.....	.....	20	362
Hamilton	454	481	.....	.....	935	.....	353	339	50	880
Hespeler	71	71	70	.....	156	18	56	45	12	150
Kincardine	78	104	.....	.....	187	.....	79	39	25	182
Kingston	300	271	.....	90	692	287	.....	.....	55	619
Lindsay	90	72	.....	.....	162	.....	69	49	25	157
London	280	467	.....	.....	860	10	175	295	50	746
Midland	155	105	.....	.....	263	31	189	5	.....	278
Millbrook	55	58	15	.....	128	.....	68	24	.....	126
Milton	84	75	.....	.....	162	.....	61	1	.....	68
Mitchell	100	92	.....	.....	196	110	.....	50	15	175
Napanee	88	88	.....	.....	196	.....	106	4	25	168
Newmarket	67	94	56	24	236	124	.....	.....	25	251
Oakville	62	82	.....	.....	144	.....	53	31	20	119
Oshawa	113	88	.....	.....	218	.....	124	56	.....	211
Ottawa	717	866	86	.....	1,603	367	698	10	200	1,505
Owen Sound	80	131	1	9	215	99	28	39	.....	211
Paisley	123	134	.....	30	340	183	.....	.....	20	278
Perth	196	182	33	.....	411	.....	183	118	12	342
Peterborough	143	119	.....	.....	262	55	106	61	25	280
Picton	115	103	.....	.....	218	.....	151	60	20	271
Port Dover	5	95	6	.....	231	107	15	45	15	211
Port Hope	120	85	.....	.....	215	.....	132	65	2	211
St. Catharines	600	800	818	39	2,867	1,286	472	64	240	3,107
St. Thomas	126	105	54	181	490	115	24	68	25	444
Sault Ste. Marie	77	97	9	.....	184	66	22	.....	.....	151
Seaforth	71	115	21	.....	237	.....	112	48	10	226
Simcoe	90	77	.....	.....	164	.....	37	32	35	154
Smith's Falls	110	149	191	.....	459	14	173	74	10	478
Springfield	57	50	34	4	147	77	47	15	10	205
Stirling	104	93	.....	.....	200	.....	112	37	.....	181
Stratford	136	133	25	13	320	125	20	60	35	360
Strathroy	257	148	.....	.....	408	85	195	11	25	373
Thornbury	96	84	.....	.....	187	.....	106	4	10	207
Tillsonburg	80	102	40	29	277	66	21	40	25	269
Toronto	850	493	977	.....	2,302	400	.....	526	.....	2,286
Vankleek Hill	66	115	.....	48	229	93	59	.....	.....	229
Walkerton	80	119	.....	16	216	15	81	40	22	226
Walkerville	220	207	75	.....	622	.....	324	.....	25	512
Waterloo	142	146	25	57	372	8	126	63	35	365
Whitby	85	73	.....	.....	179	.....	134	39	.....	190
Windsor & Sandwich	545	430	440	.....	1,418	.....	1,167	17	50	1,320
Woodstock	147	100	90	80	445	40	303	12	35	462
Totals	9,746	9,999	4,057	3,195	26,424	5,856	8,191	2,857	1,527	25,056

STATEMENT OF MEMBERSHIP AND LEGISLATIVE GRANTS FOR 1910.

Name.	Expenditure in 1909, on which grant for 1910 is based.	Membership.		Legislative grants.		
		1909	1910	1909	1910	1911
Amherstburg	$191 84	90	111	$90	$91	$112
Barrie	429 57	189	246	104	198	237
Belleville	254 50	102	115	61	115	116
Berlin	new	.....	.....	.....	.....	75
Bowmanville	213 44	112	88	85	105	73
Brampton	318 75	170	158	120	158	126
Brantford	447 16	189	137	85	203	152
Caledonia (organized in 1910)	.....	.....	63	.....	63	30
Cardinal	168 67	61	65	67	73	59
Cayuga	228 40	122	65	105	113	58
Clifford	454 71	162	160	141	195	187
Clinton	223 88	129	116	90	115	88
Cobourg	190 95	105	105	71	96	80
Collingwood	267 18	71	168	58	104	116
Durham	136 40	52	61	45	60	62
Elmira	185 97	68	64	64	80	67
Elora and Salem	96 40	53	53	36	49	43
Fergus	128 25	65	69	44	62	54
Galt	611 65	175	200	173	245	202
Goderich	144 80	79	68	55	73	60
Grimsby	174 29	100	83	74	90	60
Guelph	307 32	117	150	107	134	149
Haileybury (organized in 1910)	.....	.....	98	.....	75	123
Hamilton	739 78	330	454	407	481	529
Hespeler	148 60	72	71	52	71	61
Kincardine	221 22	104	78	88	104	71
Kingston	606 73	244	274	189	271	245
Lindsay	151 56	73	90	67	72	69
London	907 18	253	280	337	467	356
Midland	217 37	108	155	54	105	121
Millbrook	127 88	55	55	47	58	50
Milton (organized in 1910)	.....	.....	84	.....	75	44
Mitchell	178 70	104	100	78	92	76
Napanee	214 11	67	62	63	88	63
Newmarket	247 22	57	67	93	94	85
Oakville	172 66	81	62	71	82	50
Oshawa	177 23	96	113	75	88	87
Ottawa	2,390 52	1,024	717	1,133	800	800
Owen Sound	306 63	108	80	102	131	79
Paisley	280 45	136	123	90	134	110
Perth	356 26	203	196	135	182	150
Peterborough	252 78	119	143	104	119	117
Picton	228 09	95	115	77	103	106
Port Dover	253 83	53	55	57	95	71
Port Hope	169 09	102	126	55	89	94
St. Catharines	1,409 82	645	600	913	800	800
St. Mary's	new	.....	.....	.....	.....	75
St. Thomas	197 63	123	126	80	105	153
Sault Ste. Marie	186 67	112	77	.....	97	62
Seaforth	264 69	99	79	110	115	83
Simcoe	175 48	67	66	56	77	60
Smith's Falls	369 35	107	118	73	149	160
Springfield	106 95	50	57	43	50	70
Stirling	181 55	104	104	59	93	79
Stratford	288 65	125	136	125	133	135
Strathroy	287 26	167	257	106	148	177
Thornbury	163 87	87	96	55	81	84
Tillsonburg	241 10	83	85	91	102	95
Toronto	871 64	297	820	294	493	800
Vankleek Hill	279 30	87	75	70	115	82
Walkerton	260 91	110	79	57	119	82
Walkerville	475 29	177	229	100	207	203
Waterloo	304 99	149	142	117	146	138
Weston	new	.....	.....	.....	.....	75
Whitby	152 47	75	85	75	73	75
Winchester	new	.....	.....	.....	.....	75
Windsor and Sandwich	1,031 81	336	545	319	430	509
Woodstock	375 84	143	147	119	165	165
Totals	24,147 09	8,838	9,866	7,911	9,996	10,000

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ANNUAL REPORT

Bureau of Industries

FOR THE

Province of Ontario

1910

PART I.—AGRICULTURAL STATISTICS.
PART II.—CHATTEL MORTGAGES.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
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1911.

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TORONTO.

To the Honourable JOHN MORISON GIBSON, K.C., LL.D., *etc., etc., etc.*
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present herewith for the consideration of Your Honour the Report of the Ontario Bureau of Industries for 1910.

Respectfully submitted.

JAMES S. DUFF,
Minister of Agriculture.

TORONTO, 1911.

CONTENTS

PART I.—AGRICULTURAL STATISTICS.

PAGE.

THE WEATHER: General review showing the monthly *temperature, sunshine, and rain-fall* for the five years, 1906-10. 7

VEGETATION: Spring Seeding 9

STATISTICS OF FIELD CROPS 10

THE GRAIN CROPS: General description as to condition and harvest.

- Fall wheat 10
- Spring wheat 11
- Barley 11
- Oats 12
- Rye 12
- Peas 12
- Mixed grains 12
- Beans 12
- Buckwheat 12
- Corn 13

HAY AND CLOVER: General description 13

- Clover seed 13

FIELD ROOTS: General description.

- Potatoes 13
- Turnips 14
- Mangels 14
- Carrots 14
- Sugar Beets 14

MISCELLANEOUS:

- Tobacco 14
- Fall Plowing 15
- Threshing and Marketing 15
- Farm Improvements 15

FRUIT AND FRUIT TREES: General description 15

LIVE STOCK AND THE DAIRY: General review as to condition.

- Fodder Supplies in May 16
- Live Stock 16
- Statistics 17
- Fodder Supplies in November 18
- The Dairy 18

LABOR AND WAGES: General condition 19

STATISTICS OF THE WEATHER: Showing details by months and stations or districts.

- Temperature, 1910 21
- Temperature, 1882-1910 22
- Rain or Snow 23, 24
- Sunshine 24

PAGE

RURAL AREA ASSESSED: Showing by counties as taken by municipal assessor for 1910, the total *area*, acres *cleared*, acres in *woodland*, acres in *slashland*, and acres in *swamp*, *marsh* or *waste lands;* also totals for the Province for the five years, 1906-1910 25

STATISTICS OF FIELD CROPS: Showing by counties the area, produce and market values for the year 1910, together with totals for the Province for the past five years, the average for the five years, 1906-1910, and for the twenty-nine years, 1882-1910; also the average yield per acre.

Fall wheat 26
Spring wheat 26
Barley 27
Oats 27
Peas 28
Beans 28
Rye 29
Buckwheat 29
Corn 30
Potatoes 31
Carrots 31
Mangel-wurzels 32
Turnips 32
Sugar beets 33
Hay and clover 33
All field crops as above 34
Orchard, small fruits and vineyard 34
Pasture 35
Mixed grains 35

RATIOS OF AREAS UNDER EACH CROP IN 1910 PER 1,000 ACRES OF CLEARED LAND 36

MARKET PRICES: Showing by counties the average market prices of agricultural products for 1910, with comparative market prices for the Province for the past five years and the averages for the twenty-nine years' period 37

STATISTICS OF LIVE STOCK: Showing by counties the number and value of stock on hand July 1, 1910, together with the number and value of those sold or slaughtered during the year ending June 30, 1910; also comparative totals for the Province for five years.

Horses 38
Cattle 38, 39
Sheep 40
Swine 40, 41
Poultry 41, 42

WOOL: Showing by counties the clip of 1910 42

VALUES OF FARM PROPERTY: Showing by counties the value of *farm land*, *farm buildings*, *implements* and *live stock* 43
Farm property values per acre occupied 44
Value of buildings, implements and live stock per acre cleared 44

CHEESE FACTORIES AND CREAMERIES 45

PART II.—CHATTEL MORTGAGES.

CHATTEL MORTGAGES ON RECORD: Showing by counties the number and amount of chattel mortgages on record and undischarged on December 31, 1910, against (1) all occupations; (2) farmers; also totals for the Province for five years. 47

Ontario Bureau of Industries.

PART I.—AGRICULTURAL STATISTICS.

THE WEATHER.

Under their respective headings, summary tables of temperature, precipitation, and sunshine are herewith presented:

TEMPERATURE. The following table gives the temperature of the Province in each month for the last five years, together with the mean annual temperature, also the mean temperature for the six months April-September—practically the growing season—together with the average for the five years, 1906-10, and the twenty-nine years, 1882-1910:

Month.	1910	1909	1908	1907	1906	1906–1910	1882–1910
	°	°	°	°	°	°	°
January	21.6	21.6	18.7	16.9	26.6	21.1	17.8
February	16.8	22.1	14.8	13.1	18.4	17.0	17.3
March	35.2	26.9	28.1	31.0	23.4	28.9	26.4
April	46.6	38.6	39.9	36.4	43.3	41.0	41.6
May	51.2	52.0	55.8	47.3	53.5	52.0	53.6
June	62.4	64.2	64.9	63.2	65.0	63.9	63.7
July	68.3	66.6	69.4	67.3	68.2	68 0	68.0
August	65.6	67.0	65.4	63.7	70.0	66.3	64.4
September	57.0	57.9	63.0	59.5	63.3	60.1	59.8
October	49.0	44.8	49.4	44.1	47.6	47.0	47.0
November	33.4	39.0	36.9	34.3	35.0	35.7	35.0
December	17.7	22.9	23.4	26.5	19.9	22.1	23.2
Annual mean	43.7	43.6	44.1	41.9	44.5	43.6	43.2
Mean for 6 months, April to September	58.5	57.7	59.7	56.2	60.5	58.5	58.5

The mean temperature for the year 1910 was 43.7 degrees, being 0.1 degrees higher than that of the preceding year, and 0.5 degrees higher than the normal for the twenty-eight years, 1882-1910.

The mean temperature for the six months, April-September, was 0.8 degrees higher than the corresponding period of the previous year, and exactly the same as the twenty-nine year normal. March was the warmest month relatively, being 8.8 degrees above its normal, while December was the coldest relatively, with 5.5 degrees below its average.

NOTE.—The statistics of the weather are supplied by the Dominion Meteorological Service.

SUNSHINE. In the following table the averages of sunshine are, as usual, derived from the records of the weather stations at Woodstock, Toronto, Lindsay, Kingston and Ottawa:

Month.	Sun above horizon.	1910	1909	1908	1907	1906	1906–1910	1882–1910
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
January	285.7	53.0	67.1	92.3	65.5	88.6	73.3	73.3
February	291.4	107.6	76.6	120.9	116.6	135.4	111.4	103.4
March	369.9	173.7	141.7	95.2	127.1	133.0	134.1	142.7
April	406.4	152.6	156.7	177.3	155.9	201.6	168.8	184.8
May	461.1	176.1	191.5	188.2	219.9	218.6	198.8	214.5
June	465.7	242.6	264.3	332.9	230.8	228.8	259.1	245.3
July	470.9	268.9	266.0	295.4	265.7	270.3	273.3	265.5
August	434.5	204.8	273.4	263.3	252.2	255.7	249.9	242.6
September	376.3	179.3	182.4	177.0	129.6	237.7	181.2	186.7
October	340.2	142.8	128.1	162.3	153.9	125.7	142.6	139.8
November	286.9	43.2	95.5	72.1	63.0	84.2	71.6	77.5
December	274.3	74.5	55.9	61.6	46.8	65.6	60.9	60.4
Total for the year	4463.3	1819.1	1899.2	2038.5	1827.0	2045.2	1925.0	1936.5
Total for six months, April to September	2614.9	1224.3	1334.3	1434.1	1254.1	1412.7	1331.1	1339.4

The year 1910 had 1,819.1 hours of sunshine, or 117.4 hours less than the average for the last twenty-nine years. The six growing months, April-September, had 1,224.3 hours of sunshine, or 115.1 hours less than the period, 1882-1910. The five months, February, March, July, October, and December, were above average, March being the highest, with 31.0 hours; all the others were below, May being the lowest, with 38.4 hours.

PRECIPITATION. The fall of both rain and snow for the five winter months, including November, 1909, and March, 1910, is given in the following table for five years, together with the average, for the five years, 1906-1910, and for the twenty-nine years, 1882-1910. An inch of water is the equivalent of ten inches of snow:

Months.	1910	1909	1908	1907	1906	1906–1910	1882–1910
November:	in.	in.	in.	in.	in.	in.	in.
Rain	3.03	1.25	2.64	2.01	1.96	2.18	2.01
Snow	4.9	6.3	4.3	2.8	6.0	4.9	7.4
December:							
Rain	.93	.48	1.95	1.69	1.22	1.25	1.26
Snow	9.0	19.6	18.3	12.2	8.8	16.0	15.3
January:							
Rain	1.09	1.29	.45	1.92	1.34	1.22	.97
Snow	19.6	11.5	20.6	11.5	10.2	14.7	19.5
February:							
Rain	.71	1.52	.82	.09	.46	.72	.88
Snow	19.7	16.2	27.7	10.5	7.1	16.2	16.4
March:							
Rain	.65	1.06	1.36	1.62	1.13	1.16	1.20
Snow	3.1	16.8	7.4	5.1	11.6	8.8	10.3
Five months:							
Rain	6.41	5.60	7.22	7.33	6.11	6.53	6.32
Snow	66.3	70.4	78.3	42.1	43.7	60.6	69.0

The total amount of rainfall for the five months, November-March, was 6.41 inches, being practically the average fall for the twenty-nine years, 1882-1910.

The total amount of snowfall was 66.3 inches, or 2.7 inches below the average. March was 7.2 inches lower than its normal, while December and February were both 3.7 inches above.

The six months, April-September, however, comprise what is regarded as the growing season for most crops, and the following table gives the rainfall of these months for the last five years, and also the average for the five years, 1906-1910, and for the twenty-nine years, 1882-1910.

Months.	1910	1909	1908	1907	1906	1906-1910	1882-1910
	in.	in.	in.	in.	in.	in.	in.
April	3.15	3.48	1.59	1.78	1.41	2.28	1.73
May	2.84	3.44	3.59	1.77	2.34	2.79	2.85
June	1.49	1.36	1.83	2.26	4.52	2.29	2.80
July	3.12	4.02	2.90	2.17	2.93	3.05	2.96
August	3.18	2.18	2.36	1.31	2.57	2.30	2.57
September	2.45	1.91	1.13	3.76	2.41	2.33	2.59
Total for six months	16.23	16.39	13.40	13.05	16.18	15.04	15.50

The rainfall for the six months, April-September, comprising the growing season, was 16.23 inches, 0.13 inches less than 1909, and in comparison with the normal for the twenty-nine-year period, it is 0.73 inches in excess. April, July and August, were greatly in excess of their average, while June and September were considerably below, May being average.

VEGETATION.

The warm weather of March started vegetation unusually soon—from three to four weeks earlier than ordinarily. The latter half of April, however, was very wet and cold, and farther advance was much retarded, the result being that May opened with growth a week or two ahead of the average, and three weeks or a month in advance of last year. Forests were then in early leaf, and many orchards were in blossom, while pastures were green and were furnishing a good bite for the many sheep and young cattle that had been turned out to feed.

Spring Seeding. The May Bulletin said: "Field operations have been the earliest for many years. Most of the plowing had been done in the fall, and owing to the mild winter but little frost remained in the ground after the snow went away early in March. The latter part of that month and the first two weeks of April were open and comparatively warm, and an immense amount of sowing was then done, in some districts everything being practically completed but the getting in of peas, corn and roots. The seed bed for spring grains, generally speaking, was excellent, the catch was unusually good, and the new crops were making a very early and most promising showing as correspondents wrote. The latter part of April, however, turned out to be almost continuously wet, the rainfall being about double that of the normal, while the temperature remained so low during that period as almost to check growth. But even with this setback spring sowing is about a month earlier than last season, and a week or two ahead of the average year."

STATISTICS OF FIELD CROPS.

The following table gives the acreage, production and market value of the field crops of Ontario for the year 1910. Detailed tables showing the statistics by counties will be found elsewhere in this report.

Crops.	Acres.	Bushels.	Bushels per acre.	Market Value
				$
Fall Wheat	743,473	19,837,172	26.7	17,172,678
Spring Wheat	129,319	2,489,833	19.3	2,229,999
Barley	626,144	19,103,107	30.5	9,930,410
Oats	2,757,933	102,084,924	37.0	35,698,964
Peas	403,414	6,016,003	14.9	4,856,986
Beans	49,778	892,927	17.9	1,386,798
Rye	95,397	1,620,333	17.0	1,024,787
Buckwheat	194,913	4,693,881	24.1	2,346,387
Corn (for husking)	320,519	24,900,386	77.7	9,301,245
Potatoes	168,454	21,927,804	130	10,798,597
Carrots	3,551	1,049,348	296	131,169
Mangel-wurzels	68,966	34,686,137	503	2,774,891
Turnips	108,360	49,425,472	456	4,942,547
Sugar Beets	26,879	11,238,577	418	1,348,629
Mixed grains	497,936	18,261,803	36.7	9,187,822
		tons	tons	
Corn (for Silo)	326,627	3,788,364	11.6	7,576,728
Hay and Clover	3,204,021	5,492,653	1.71	54,407,105
Totals:				
1910	9,725,684			175,115,742
1909	9,578,323			167,966,577

The acreages devoted to other crops were as follows: Orchards, 298,347; small fruits, 24,384; vineyards, 11,390; gardens, 57,982; rape, 41,052 (more than one-half of which is grown in Grey, Dufferin and Wellington); flax, 12,021 (more than one-half of which is grown in the five counties, Lambton, Huron, Bruce, Grey, Wellington); hops, 1,070; tobacco, 6,391 (Essex, 4,003, and Kent, 1,467); summer fallow, 254,038; pasture (cleared), 3,159,712.

THE GRAIN CROPS.

Fall Wheat. The bulletin sent out in November, 1909, thus referred to the wheat then growing: "The high prices which have been prevailing for wheat have resulted in a considerably enlarged area of that grain being sown this fall. The ground was rather dry and lumpy at seeding, especially on stubble land, with the weather rather cool, and as a consequence the catch was a little slower than usual. The result is that the young plants are rather shorter on top than in most seasons at this time, but are otherwise vigorous and of good color, and most fields will enter the winter with good prospects. Sowing ranged from the last week of August to the end of September, but most of the crop was got in about the second week of the last-named month. Only a few references to the Hessian fly were made by correspondents this year; white grubs and wire-worms are the chief insects complained of. Dawson's Golden Chaff is still the favorite variety."

Fall wheat entered into May well forward and presented a good appearance on the whole, more especially where it had been got in early. Some late sown fields looked rather thin, owing to the dry fall, and on low-lying places there were

bare spots caused by ice forming during the early winter. In most of these instances barley or other spring grain was sown on the patchy places in preference to replowing, less of the latter being done than in former years. Injury to the crop from heaving from frost was practically *nil;* in fact, the usually trying month of March was, if anything, too dry and open. The rainy weather of the latter half of April gave the crop a fresh start, and although some had fear of "drowning out" in low places, it was quite vigorous looking at last accounts. The injury from insect pests reported in the spring was less than usual, there being but scattering mention of Hessian fly, wire-worm and white grub.

The August bulletin said: "Fall wheat may be classed as a good crop, although more shrunken grain is reported than in any of the last two or three years, attributed largely to the dry weather when filling. From several localities come reports of smut in Dawson's Golden Chaff, but only a little rust is complained of. In some of the western and central counties hail storms did considerable injury to the growing crop in strips and patches, and other crops also suffered from this cause. But despite these various drawbacks the average yield of fall wheat, as reported, will be high. The straw was of better length than in more recent years, and stood up well, there being much less lodging than in the case of the spring rains. Several correspondents state that the crop was particularly good on summer fallow. Odd mention only was made of injury from insect pests, such as Hessian fiy, white grub, midge, and wire-worm. Harvesting ranged from the 8th of July to the end of the month."

While a number of correspondents, reporting in November, spoke of the yield and quality of fall wheat as being the best for years, others complained of the grain being less plump than usual, owing to dry weather at the time of filling. Taken as a whole, however, fall wheat was classed as better than an average crop.

The New Fall Wheat. The November bulletin said of the young fields: "An increased acreage of wheat has been sown this fall, and as most favorable conditions existed at seeding, and since that time, the crop is now looking most promising. In fact, some correspondents express a fear that the young fall wheat may have too much top for entering the winter. Only scattering mention was made of injury to the crop by Hessian fly, wire-worm, or other insects. Sowing ranged from the last week of August to the first week of October, the bulk of the crop being put in during the first and second weeks of September. Dawson's Golden Chaff is still the favorite variety of fall wheat. Red Clawson and over forty other named varieties following."

Spring Wheat. This class of wheat is steadily going out of favor in Ontario, and where grown is confined chiefly to the "Goose" variety. August estimates were to the effect that the yields per acre would vary much, but would likely give a fair average.

November reports described spring wheat as being fully up to the standard in every respect.

Barley. August returns were thus summarized: "This crop will be a good one, generally speaking, although conflicting reports have been received even from the same localities. The straw was clean and bright as a rule, but it was rather short, and a considerable portion of it was lodged owing to heavy winds and rains. While the grain is generally described as being plump and of good average yield, there are some reports of discoloration, but as most of the barley is fed to live stock this is not now regarded as a serious drawback. The crop was cut comparatively early—in a few cases before fall wheat."

November reports regarding barley were to the same effect as those received in August.

Oats. The August bulletin said of oats: "This crop was so badly knocked down by rain storms that a considerable portion of it could be cut only one way by the binder. Some correspondents also complain of the uneven ripening of the grain owing to the lodging. In most localities the straw was short, but clean and bright, only a little smut or rust being reported. The bulk of the returns speak of the heads as being well filled and the grain as plump, and on the whole crop will be a satisfactory one. Insects did but little injury. Harvesting spread from the last week of July to the middle of August."

November returns stated that oats were rather short in the straw, but the heads were well filled with grain of good weight, and where the crop was not knocked down by rain storms just before cutting it was an unusually good one. On account of wet weather when harvesting, oats were harder to gather than in the case of the other spring grains.

Rye. This crop is not largely grown for grain in this Province, but where raised it did well as a whole this season, although individual returns showed a wide range of yield.

Peas. The August bulletin had the following: "The pea crop has been rather disappointing, although in some cases remarkably good yields have been reported. The crop did not get a good start in the spring, owing to too much rain, and the dry, hot weather at blossoming prevented a satisfactory podding. While the weevil was but little complained of, the presence of a green aphis was reported in most parts of the Province, which appears to have checked the vigor of the growing vines, more especially those later sown, and as a result the straw is not so long or leafy as usual. Harvesting began early in August, but when correspondents wrote about the middle of the month considerable of the pea crop remained to be pulled."

The November summing up of conditions regarding peas was to the following effect: "This crop has been somewhat discouraging to most growers this year. The vines suffered from drouth, and a green aphis also affected them, and as a result the pods were but poorly filled in most cases. The pea weevil was also reported in several localities."

Mixed Grains. Correspondents are hardly as enthusiastic over the growing of mixed grains as they were a year ago. It is claimed by some that it is difficult to get the various grains to properly ripen together; but others still point to the advantage of a greater production by the combination. Mandscheuri barley and Daubeney oats are still the favorite mixture, while some prefer to add peas. Peas and oats, and oats, barley and peas, also have their advocates.

Beans. Beans were only in blossom, or just podding, when most of our correspondents wrote, about the third week of August, and at that time prospects were considered fair; but later reports were to the effect that while the plants were making a large spread they were not podding very well. Rainy weather at a critical time was given as the chief cause of injury to the crop. Prospective harvesting was variously placed at from the 1st to the 15th of September.

The November bulletin had the following: "Beans may be described as a medium crop, the early planted fields doing better than those put in late, which were caught by rainy weather at harvesting."

Buckwheat. Some fields were caught by early frost, and there was also injury from rain at the time of cutting; but the crop generally may be classed as an excellent one, both as to yield and quality.

Corn. The August bulletin remarked: "The corn crop got off to a bad start, the weather turning cold and wet just after planting, rotting some of the seed. Complaints of inferior seed are also common. For these two reasons there was a great lack of germination, and considerable corn land had to be more or less replanted. Crows, blackbirds, and grubs also did injury to the young corn. More recent weather, however, has favored the crop, and it was making a rapid and promising growth when correspondents wrote."

November reports concerning corn were thus summarized: "While spring conditions were unfavorable for this crop, the summer and fall were ideal for its growth, and the term 'splendid' is sometimes used by correspondents in describing the result. Corn escaped fall frosts almost entirely, was well cobbed, and matured in excellent condition both for husking and the silo."

HAY AND CLOVER.

Clover. The May bulletin said: "Like fall wheat, clover wintered well, and the spring was also favorable, there being practically no heaving from frost. As a result very little has been plowed up. The crop suffered more from last season's drouth than from anything else. This had a tendency to thin many fields. But, taken altogether, clover presents a good appearance at present, more especially in the case of new meadows, and enters upon the growing period with the promise of a good yield should ordinarily fair conditions prevail."

Referring to hay and clover, the August bulletin had the following: "This is relatively the best crop of the season, and it would have been even better but for close feeding on pastures last fall. In almost every instance new seeding did much better than old meadows. Most of the cut was housed in good condition. Clover was remarkably free from midge, and as the second crop was looking well when correspondents wrote, the prospects for a good yield of clover seed were regarded as excellent. Most of the hay was cut in the first or second week of July, but some late fields had to stand over on account of grain harvesting. Correspondents speak of alfalfa as having made a splendid growth this season."

Clover Seed. Ontario farmers are paying more attention than formerly to the raising of clover seed. The season has been a favorable one for this purpose, and the general results have been satisfactory. There were only a few complaints of midge, and these came chiefly from the western part of the Province.

FIELD ROOTS.

Potatoes. The following reference to potatoes was contained in the August bulletin: "Early planted potatoes suffered from drouth and will yield lightly, but those planted late will have a fair return The Colorado potato beetle has been present in unusually large numbers in nearly every section of the Province. So far only slight mention has been made of rot."

November reports were to the following effect: "Potatoes are credited with a large average yield, and many of the returns speak of their excellent quality. There are some complaints of rot on heavy soils, however, and also among some potatoes in cellars. The crop was dug and housed under ideal weather conditions."

TURNIPS. According to the August returns turnips suffered from poor germination of seed, and a good many fields had to be resown and some were finally plowed up. Up to the time of reporting—the third week of August—turnips were not considered to be up to the average.

November returns were much more encouraging. The bulletin then issued said of turnips: "This class of roots has done better than was expected when correspondents reported in August. There will be a fair yield, and although, as a rule, only medium in size the quality of turnips is in general first-class. A few remained to be pulled as returns came in."

MANGELS. When correspondents reported in August mangels had done much better than turnips, and were regarded as a most promising crop. The November returns bore out the earlier expectation, and a good crop of mangels of excellent quality was reported, and all had been safely placed under shelter by the end of October.

CARROTS. Carrots are not largely raised as a field crop, but where grown this season they were a success.

SUGAR BEETS. These roots are increasing in popularity for feeding to live stock. They were a good crop where grown, and were all harvested before November.

OTHER FIELD CROPS.

TOBACCO. The August bulletin said: "While a few promising fields of tobacco are reported, the bulk of the crop is rather backward and uneven in appearance and yield. The early part of the season was unfavorable to growth, and consequently much of the planting had to be done late. There are reports of damage by hail, and grubs and other insects also did injury However, the crop was picking up with the advancing season,"

November reports were thus summarized: "Tobacco ranges from fair to good, so far as yield is concerned. On high land growth was checked by drouth early in the season, and hail in midsummer did injury to some fields; but fine, open weather later helped growth, and conditions at harvesting were favorable. The leaf is said to be curing well. The present indications are that a considerably increased acreage of tobacco will be grown next year."

WEEDS.

The following reference to weeds was contained in the August bulletin: "Several correspondents complain of the weed nuisance, and the cry is growing more bitter as conditions fail to improve. It is pointed out that not only are the clean farms of progressive farmers threatened by the foul, weedy fields of careless neighbors, but the rural roadsides are yearly becoming a serious menace to good cultivation. The weed question in Ontario has come to a stage where it demands early and careful consideration by all concerned."

The November bulletin also contained a statement regarding weeds, as follows: "Correspondents continue to express themselves vigorously regarding noxious weeds, and refer to the discouraging conditions prevailing upon many country waysides, and on neighboring farms. Rural public opinion appears to be rapidly becoming prepared for the adoption of more radical measures for abating of the weed nuisance."

MISCELLANEOUS.

Fall Plowing. Reports as to the progress of fall plowing vary greatly, even in the same localities; but, as a whole, the work was fairly advanced when correspondents reported at the end of October, with prospects of completion in good time. The land early in the fall was considered rather dry and hard, but timely rains came and put it in splendid condition for plowing. Silo filling, early threshing, and the poor handling of plowing teams by many of the newer class of farm laborers, are the chief reasons given by those who reported the work as backward.

Threshing and Marketing. While some correspondents state that threshing was completed by the end of October, and others say that none had been done on account of the rush of other fall work, the bulk of the reports were to the effect that grain separation was well advanced generally. Grain has been moving but slowly to market, except where some farmers have been pressed for ready money. The price of wheat is such that owners are holding back for a rise, or else will feed a good share of it later if present values of live stock continue. Most of the barley is now fed on the farm, and less of the oat crop is sent to market than formerly.

Farm Improvements. A fair amount of tile draining has been done this season, and doubtless more would have been accomplished but for the lack of skilled ditchers. A few correspondents speak of the use of ditching machines, and their comments are more or less favorable. There was a scarcity of tile in some of the Lake Erie counties, but elsewhere the supply was equal to the demand. Considerable advance was made in the erection and improvement of farm buildings, more especially in the placing of cement basements under barns. Metal roofing and siding for farm buildings are becoming more popular yearly. A large amount of up-to-date wire fencing has also been put up.

FRUIT AND FRUIT TREES.

The following appeared in the May bulletin: "With the exception of a severe ice or sleet storm in the latter part of November that broke off many branches, fruit trees have come through the winter in normal condition. The damage done was confined to a few sections in western and central Ontario. Blossoming will average about a fortnight earlier than usual, peaches, cherries, and plums being well in bloom in the more southern counties, together with some apples and pears. While there is a profusion of blossom it is possible that the heavy rains of the last two weeks of April may have washed off some of the pollen, and until the fruit sets there will be uncertainty as to whether the yield of sweet cherries and early plums will be a large one after all. A number of correpondents also express fear that owing to the very early blossoming there may be a setback from spring frosts yet to come, but up to the time of the latest reports not the slightest injury has occurred from this cause. The San Jose Scale is spoken of as doing harm in different parts of the Province, and some farmers are cutting down their trees. On the other hand, much activity in spraying is reported. The general outlook regarding orchard conditions is encouraging. Small fruits are well advanced, and promise an unusually early market. There has been more planting of new orchards, including apples, peaches, cherries—in fact all kinds of fruits—than has taken place for several years past. Nurserymen report all domestic supplies exhausted."

The August bulletin said: "'A poor fruit year' summarizes the general situation. It has been an off season with apples especially, more particularly in the case of desirable winter varieties, and the quality of much of the fruit now remaining on the trees is not up to the standard. Wet and backward weather when the fruit was setting is given as the chief cause of the remarkably light yield. Plums have borne unevenly—from poor to good—according to the degree of spraying practised. Pears are doing better than apples, although not giving a full yield. Peaches will be about an average crop. Cherries were medium in yield, and grapes give fair promise. Strawberries suffered from drouth when maturing, which prevented best results. Other small fruits are yielding moderately."

Orchard conditions for the year were thus summed up in the November bulletin: "The season of 1910 will be remembered as one of the poorest on record for apples, all the good winter varieties being exceedingly scarce. Spring frosts and wet weather at the setting of the fruit are given as the chief causes of the poor yield. Some correspondents charge that there is a too general neglect of Ontario orchards, and claim that where spraying and reasonable care were given to fruit trees there were satisfactory results this season. Pears, peaches, and plums were more plentiful than apples, although the surplus was not large. In many parts of the Province high winds blew off a considerable quantity of fruit before it was fit for marketing. Grapes, strawberries and other small fruits yielded well."

LIVE STOCK AND THE DAIRY.

Fodder Supplies in May. The bulletin issued in that month said: "A correspondent, describing the fodder situation, says: 'The short and mild winter worked wonders,' and others write to the same effect. The good corn crop of last year also helped farmers to save on hay and grain in feeding live stock. Straw has been scarce and dear. The high prices offered for grain tempted some to sell rather too freely, while others were endeavoring to make even more by feeding for pork and beef, which have been realizing top figures. The early grass was a boon to owners of live stock, owing to the high cost of all kinds of feed. In most districts there is a sufficiency of hay, oats, wheat, etc., for any emergency, but as most of these commodities are now fed to live stock commanding unusually high prices, it is more or less of a guess whether any present scarcity of these should be taken as a sign of hard times or prosperity. To sum up, the general tone of the reports regarding fodder supplies is much more cheerful than those of more recent years."

Live Stock. The May bulletin had the following: "All classes of live stock are at a premium. Prices for horses are high and firm, attributed by some to the great demand from our western Provinces. Their general health has been good, except for an influenza which slightly attacked many, but in some cases assumed a fatal form of strangles. Cattle have been remarkably free from disease, but are rather thin in flesh owing to somewhat close feeding. Milk cows are fewer in number than usual, but in both dairy and beef-raising sections more calves are being kept. Fat cattle are very scarce, and stockers are harder to procure than in former years; even local butchers find it difficult to procure suitable animals. As a consequence a good deal of inferior beef has been disposed of at good prices. Sheep are doing well, lambs coming strong and plentiful in proportion to the number of dams. High prices for these also prevail. A correspondent very suggestively re-

marks that the rabies among dogs has been a boon to sheep. Swine are not so plentiful as in former years, as they have been rushed to market at prices characterized by one correspondent as 'sky high.' In fact, there are complaints of too hasty for. While a few large litters are reported, more frequent mention is made of heavy losses at birth. Otherwise swine have been unusually free from disease."
marketing. Brood sows are in less numbers than the brisk market conditions call

August conditions were thus described in the bulletin issued in that month: "Pastures have been in fair condition all season, and were very promising as correspondents reported. Live stock of all classes have been remarkably free from disease. In most of the beef-raising counties there is a shortage of steers, and dairy cows are also fewer than in more recent years. Prices for both beef and dairy produce have been most encouraging to farmers. Taking the season as a whole, the milk flow has been a good one, for while it went down a little during the midsummer period it has recovered nicely, and for the time of the year it is considered to be excellent. The chief handicap to the comfort of cattle has been the presence in large numbers of the horn-fly. In some of the St. Lawrence counties several cheese factories are shipping cream to the State of New York and are also extracting casein from the skim milk. Fodder supplies promise to be abundant, and live stock owners will meet the winter with good prospects for the keep of their animals."

The November bulletin said: "Fall pastures have been all that could be desired, and, where not overstocked, have kept grazing animals in fine condition. All classes of live stock have been remarkably free from serious diseases; in fact, there is practically a clean slate. Horses are in considerable demand, and at higher prices than formerly. Cattle did unusually well on the grass, and all ages and classes can find a ready market at better values than for many years. Young beef animals especially are hard to procure. There have also been too few sheep for the demand. A large and steady traffic has been done in swine. The recent drop in market values has checked sales somewhat, but the supply on hand is barely normal. All over the Province a larger number of silos than usual have been erected this year, many of them made of concrete."

STATISTICS. The following table gives the total numbers and value of the several classes of live stock and poultry on hand July 1st, 1910, together with live stock or slaughtered, in the year preceding that date:

Live Stock.	Live stock on hand, July 1, 1910.		Sold or slaughtered in year ending June 30, 1910.	
	No.	Value.	No.	Value.
		$		$
Horses (all ages)	724,384	92,757,431	97,900	13,345,490
Cattle:—				
Milch cows	1,052,796	42,908,322	817,239	30,595,363
Other cattle	1,514,332	33,964,401		
Sheep and lambs	1,065,101	6,127,018	512,909	2,748,972
Swine (all ages)	1,561,042	13,265,834	1,844,405	23,029,692
Poultry (all kinds)	12,460,787	5,393,031	4,164,715	2,114,214
Totals:				
1910	.....	194,416,037	.....	71,833,731
1909	.....	184,747,900	.....	64,464,923

The values for the several classes of poultry on hand July 1, 1910, were as follows: Turkeys, $583,218; geese, $320,830; ducks, $175,120; other fowl, $4,313,855.

VALUE PER HEAD. The following table gives the average value per head of live stock and poultry, at five-year intervals:

Live Stock.	Live stock on hand July 1.				Sold or slaughtered in year ending June 30.			
	1910	1905	1900	1895	1910	1905	1900	1895
	$	$	$	$	$	$	$	$
Horses (all ages).....	128	110	76	62	136	119	79	65
Cattle:—	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Milch cows	40 76	35 06	31 01	29 74	37 44	36 23	32 12	31 74
Other cattle	22 43	21 29	17 93	16 08				
Sheep and lambs.....	5 75	4 68	4 29	3 81	5 36	4 28	3 64	3 64
Swine (all ages).....	8 50	6 44	5 42	5 47	12 49	9 79	7 69	5 47
Poultry (all kinds)	43	34	29	28	51	39	37	36

FODDER SUPPLIES IN NOVEMBER. The bulletin issued in that month contained the following: "Farmers face the winter with more assurance than for years, owing to the general sufficiency of all classes of fodder. There is a surplus of hay, ranging from $8 to $16 a ton, according to the nearness to good markets, and there is plenty of straw. The largely increased silo accommodation, with the big corn crop, has lessened the call on other fodders. The abundant fall pastures, and the growing of millet or Hungarian grass, have also enabled farmers to husband their regular winter feeding supplies. As usual, considerable oil-cake and bran, shorts and other mill feeds, will be purchased, but more charily than formerly, as the prices for all these commodities are high, and many farmers are now studying feeding equivalents. There has been a brisk demand for beef cattle, sheep, and hogs all the season, and this has left less live stock on hand than usual. There is also the important fact that Ontario farmers, after the hard lesson of two or three years ago, have learned to feed more wisely, and there is now but little waste of fodder."

DAIRYING. The following special reference to dairying was made in the November bulletin: "The milk flow was well maintained by the excellent fall pastures, thus prolonging the dairy season. Butter has gained upon cheese, taking the Province as a whole. As between butter and cheese, prices have rather favored the former, and the local demand for butter appears to be increasing. The general quality of both creamery and homemade butter has been high this year. Condensed milk factories in the Oxford district, and the shipping of cream and casein over the border along the St. Lawrence, have also helped to lessen the cheese production of the Province. Shorthorns and Holsteins are about equally popular among western Ontario dairymen, while Holsteins have a large lead in eastern Ontario, Ayrshires and Shorthorns coming together in second place."

The number of cheese factories in operation in 1910, as reported to the Director of Dairying by the dairy instructors, was 1,102, as compared with 1,177 in 1909. The amount of cheese made was 135,521,390 pounds, valued at $14,491,410. In 1909 the figures were 125,611,359 pounds, valued at $14,193,918. In the 121 creameries, and in the butter plants in a number of cheese factories, there were made 12,893,650 pounds of butter, valued at $3,016,135, as compared with 9,015,206 pounds, valued at $2,175,955, in 1909. In 1910 cream was sold to the extent of $107,831. The milk of over one-half the milch cows of the Province is sent to the cheese factories and creameries, so that about half a million cows are available for milk supply and for the making of butter in the home dairies.

FARM LABOR AND WAGES.

Labor conditions on the farm were thus described in the August bulletin: "Notwithstanding the large immigration, farm help has been more difficult than ever to obtain, and much of the help offering is inexperienced. Farmers are very anxious to get in the heavy hay crop in time for grain cutting, but the season kept so open during the early part of harvesting that the lack of laborers was not so keenly felt. Owners of farms are now using up-to-date machinery in their various operations, and they also help out the labor situation by exchanging work with their neighbors. Some correspondents, however, point out the serious fact that owing to lack of men to give proper attention and cultivation to the soil certain weeds are becoming a terrible nuisance, both on farm land and on rural highways. Rates of farm wages range from $1 to $2 a day, with board, according to experience and ability, and from $15 to $40 a month, $25 to $35 being most frequently paid to trained men."

The November bulletin had the following to say of farm labor:—"Help on the farm has been scarce this season, especially in the case of experienced and capable men. The opening up of new country to the north and west is still drawing away a number of our young men, and while some of the immigrants who have taken their places have given good satisfaction, others are described as being very inexperienced, poor learners, and practically of no help upon a farm. The use of improved machinery, an exchange of work, and more pasturing of land, are looked to by some correspondents as the best way to meet the scarcity of rural labor. The consensus of opinion is that little or no change is likely to take place in the rate of wages in the near future. Domestic servants are almost impossible to secure, the attractions of the town being greater than those of farm life for the great majority of girls."

TEMPERATURES OF 1910.

TABLE I.—Showing for each month the highest, lowest, mean highest, mean lowest, and mean temperature at the principal stations in Ontario for 1910; also the annual mean for each station.

Months.		Southampton.	Birnam.	London.	Woodstock.	Stoney Creek.	Toronto.	Lindsay.	Gravenhurst.	Ottawa.	Stonecliffe.
		°	°	°	°	°	°	°	°	°	°
January	Highest	41.4	40.0	40.5	40.8	44.0	41.2	42.6	39.0	45.0	41.0
	Lowest	— 3.0	1.5	— 5.0	— 2.0	0.0	— 7.0	—16.2	—22.2	—18.0	—25.0
	Mean highest	29.0	27.4	29.8	30.0	32.3	31.9	29.2	27.5	25.8	29.7
	Mean lowest	15.8	18.5	15.7	15.8	20.1	19.0	11.7	8.6	9.6	3.1
	Monthly mean	22.4	23.0	22.8	22.9	26.2	25.5	20.5	18.1	17.7	16.4
February	Highest	41.0	40.1	40.5	40.5	43.0	43.4	39.6	38.0	44.0	48.0
	Lowest	— 8.5	—15.0	—16.0	—16.5	— 9.0	—10.2	—20.6	—33.0	—18.0	—33.0
	Mean highest	27.6	25.0	28.4	28.7	29.1	29.2	27.0	23.9	22.5	25.0
	Mean lowest	10.4	10.4	9.4	8.1	12.2	12.8	6.2	1.3	3.8	— 6.0
	Monthly mean	19.0	17.7	18.9	18.4	20.7	21.0	16.6	12.6	13.2	9.5
March	Highest	75.4	75.5	78.5	74.0	78.0	75.2	70.9	70.0	71.0	73.0
	Lowest	6.1	15.0	13.5	12.0	12.0	11.5	5.0	— 7.4	— 3.0	—15.0
	Mean highest	46.2	48.3	51.8	48.4	49 3	47.6	45.7	43.2	41.3	42.5
	Mean lowest	26.6	31.5	29.0	28.4	30.8	30.1	23.8	19.8	25.1	16.0
	Monthly mean	36.4	39.9	40.4	38.4	40.1	38.9	39.8	15.7	33.2	29.3
April	Highest	79.2	77.2	78.5	76.0	74.0	74.0	74.6	75.0	73.0	77.0
	Lowest	24.1	21.3	23.0	21.0	24.0	27.0	20.2	23.0	25.0	20.0
	Mean highest	52.8	54.7	59.6	56.6	54.7	55.3	56.7	55.3	56.4	56.4
	Mean lowest	35.4	37.3	36.0	35.2	37.5	38.4	36.2	34.7	38.6	33.1
	Monthly mean	49.1	46.0	47.8	45.9	46.1	46.9	46.5	45.0	47.5	44.8
May	Highest	76.0	74.3	78.5	77.5	78.0	79.6	74.8	75.0	76.0	81.0
	Lowest	27.6	28.4	27.0	28.5	33.0	32.2	31.3	21.0	35.0	25.0
	Mean highest	57.8	59.5	62.5	61.4	60.4	61.2	64.4	60.8	62.6	65.2
	Mean lowest	39.4	41.3	40.5	40.8	42.0	43.7	40.0	36.5	45.0	38.9
	Monthly mean	48.6	50.4	51.5	51.1	51.2	52.5	52.2	48.6	53.8	52.1
June	Highest	82.2	88.0	91.5	88.0	91.0	93.4	89.4	87.0	86.0	84.0
	Lowest	35.1	37.0	34.5	35.0	36.0	41.2	36.9	29.0	35.0	27.0
	Mean highest	68.1	71.4	76.9	73.5	74.1	75.3	77.5	73.1	73.6	71.6
	Mean lowest	50.0	51.9	51.4	51.3	52.9	53.9	51.1	47.1	54.5	48.1
	Monthly mean	59.1	61.6	64.1	62.4	63.5	64.6	64.3	60.1	64.1	59.9
July	Highest	85.1	92.2	96.5	91.0	95.0	93.3	94.0	89.0	88.0	92.0
	Lowest	44.4	47.7	47.0	42.2	48.0	51.5	46.7	43.0	52.0	43.0
	Mean highest	75.3	80.9	83.5	80.2	83.0	82.4	81.4	79.0	78.5	77.4
	Mean lowest	57.1	59.4	57.9	57.2	61.0	59.8	56.2	53.3	59.9	53.2
	Monthly mean	61.2	70.2	70.7	68.7	72.0	71.1	68.8	66.2	69.2	65.3
August	Highest	84.1	84.4	90.5	85.5	88.0	85.1	83.8	84.0	82.0	81.0
	Lowest	46.2	45.3	45.0	46.0	48.0	47.7	43.3	40.0	47 0	40.0
	Mean highest	74.6	75.4	79.0	76.7	77.0	77.5	77.0	74.3	75.2	72.3
	Mean lowest	57.3	56.9	55.5	55.6	56.9	57.7	53.1	51.9	57.2	52.6
	Monthly mean	65.9	66.1	67.2	66.1	66.9	67.6	65.0	63.1	66.2	62.4
September	Highest	80.0	78.2	84.5	79.2	83.0	81.3	78.0	77.0	74.0	75.0
	Lowest	37.0	39.0	36.0	36.0	40.0	38.7	37.0	29.0	36.0	28.0
	Mean highest	65.8	67.7	72.1	69.0	70.0	69.8	67.4	65.7	64.3	62.4
	Mean lowest	48.4	50.9	47.8	46.9	50.7	50.1	44.3	41.0	45.2	40.9
	Monthly mean	57.1	59.3	60.0	57.9	60.3	60.0	55.9	53.3	54.8	51.7
October	Highest	75.5	76.0	79.0	75.5	77.0	73.3	78.5	74.0	72.0	73.0
	Lowest	29.0	15.2	14.0	23.0	26.0	25.4	17.9	20.0	27.0	17.0
	Mean highest	58.4	57.9	61.6	60.0	61.1	60.0	59.3	55.9	54.5	54.2
	Mean lowest	41.8	43.0	40.0	39.1	43.2	42.4	38.1	35.4	38.5	34.1
	Monthly mean	50.1	50.5	50.8	49.6	52.2	51.2	48.7	45.7	46.5	44.2
November	Highest	59.8	59.2	60.0	59.4	61.0	56.6	55.5	53.0	57.0	49.0
	Lowest	22.0	20.5	19.0	19.0	21.0	25.6	21.1	16.0	18.0	8.0
	Mean highest	39.1	38.1	38.9	40.8	41.7	40.8	36.6	35.9	35.9	36.8
	Mean lowest	30.7	30.4	28.1	27.8	32.1	31.2	27.0	25.5	28.3	22.7
	Monthly mean	34.9	34.2	33.5	34.3	36.9	36.0	31.8	30.7	32.1	29.7
December	Highest	37.7	35.4	35.5	37.5	40.0	38.7	35.8	37.0	35.0	46.0
	Lowest	— 1.1	— 6.5	— 9.0	—10.0	—10.0	— 6.8	—21.0	—33.0	—25.0	—33.0
	Mean highest	29.4	26.8	27.9	28.0	30.2	28.5	24.6	24.8	19.7	24.1
	Mean lowest	15.1	15.2	12.7	11.5	14.7	13.7	3.2	0.0	4.1	— 1.3
	Monthly mean	22.2	21.0	20.3	19.8	22.5	21.1	13.9	12.4	11.9	11.4
Annual mean		35.5	45.0	45.7	44.6	46.6	46.4	43.7	39.3	42.5	39.7

AVERAGE TEMPERATURE FOR TWENTY-NINE YEARS.

TABLE II.—Showing for each month the monthly average for the highest, lowest, mean highest, mean lowest and the mean temperature at the principal stations in Ontario, derived from the twenty-nine years, 1882-1910, also the annual mean at each station for the same period.

Months.		Southampton.	Birnam.	London.	Woodstock.	Stoney Creek.	Toronto.	Lindsay.	Gravenhurst.	Ottawa.	Stonecliffe.
		°	°	°	°	°	°	°	°	°	°
January	Highest	45.2	45.1	46.8	46.4	51.4	45.3	42.0	41.6	40.4	38.2
	Lowest	− 6.9	− 9.1	− 9.4	−11.2	− 5.0	− 7.5	−20.3	−26.9	−21.1	−34.2
	Mean highest	28.4	27.2	28.9	28.0	32.5	29.2	24.6	24.3	20.1	18.5
	Mean lowest	13.6	15.1	14.0	11.8	18.1	14.7	7.0	4.0	2.1	− 5.7
	Monthly mean	21.0	21.2	21.5	19.9	25.3	22.0	15.8	14.2	11.1	6.4
February	Highest	44.4	46.6	46.0	45.3	48.1	44.1	42.0	42.0	40.3	41.7
	Lowest	−11.1	−12.5	−12.1	−12.0	− 6.3	− 8.4	−18.6	−26.8	−20.7	−35.2
	Mean highest	27.6	26.7	28.4	27.7	30.8	28.6	25.3	24.8	21.8	21.8
	Mean lowest	10.9	12.7	11.5	10.3	14.8	13.1	5.6	3.0	3.3	− 1.5
	Monthly mean	19.2	19.7	19.9	19.0	22.8	20.8	15.4	13.5	12.5	10.1
March	Highest	54.1	58.4	58.5	56.4	60.2	54.4	51.4	50.8	48.1	51.0
	Lowest	− 2.7	− 1.7	− 0.7	− 1.3	5.7	4.1	− 6.4	−13.1	− 8.2	−24.0
	Mean highest	35.5	36.5	38.1	36.5	40.3	36.6	34.4	34.1	32 8	33.3
	Mean lowest	18.4	21.7	20.9	19.2	25.2	22.2	16.2	13.2	15.3	7.3
	Monthly mean	27.0	29.1	29.5	27.9	27.8	29.4	25.3	23.7	24.1	20.3
April	Highest	72.8	76.5	75.9	74.5	76.9	70.9	73.8	70.8	73.1	73.5
	Lowest	15.8	17.9	18.5	17.1	22.8	21.0	13.9	11.0	15.2	6.6
	Mean highest	49.4	52.3	53.2	52.4	53.3	50.8	51.9	49.7	50.8	50.8
	Mean lowest	31.3	34.0	32.7	31.8	35.6	34.0	30.8	28.9	31.3	26.3
	Monthly mean	40.3	43.1	42.9	42.1	44.4	42.9	41.3	39.3	41.0	38.5
May	Highest	79.8	82.1	82.3	80.9	84.4	78.9	82.2	81.1	82.6	83.9
	Lowest	28.4	29.1	29.6	28.8	33.5	32.2	28.0	27.0	31.0	24.0
	Mean highest	61.0	65.1	66.4	64.5	65.1	62.7	65.6	63.6	65.9	65.1
	Mean lowest	41.3	44.3	44.0	42.5	44.8	44.0	42.0	41.1	43.5	38.4
	Monthly mean	51.2	54.7	55.2	53.5	55.0	53.4	53.8	52.4	54.7	51.7
June	Highest	85.3	88.0	88.1	87.2	91.7	87.2	88.9	87.1	88.1	89.4
	Lowest	37.5	37.6	38.1	38.4	42.4	42.6	39.0	36.5	41.9	33.4
	Mean highest	70.9	75.2	76.2	75.3	77.1	74.0	76.2	74.9	75.9	75.7
	Mean lowest	50.9	53.6	53.4	51.9	55.4	54.0	51.5	50.8	54.1	48.0
	Monthly mean	60.9	64.4	64.8	63.6	66.2	64.0	63.8	62.8	65.0	61.8
July	Highest	87.1	91.7	91.5	89.9	95.2	90.5	91.0	89.0	90.7	90.7
	Lowest	43.4	42.9	43.9	44.0	48.9	48.4	44.0	43.0	47.8	40.2
	Mean highest	76.9	79.7	80.2	79.4	82.7	78.8	79.8	78.1	79.0	78.0
	Mean lowest	56.0	57.5	57.2	55.7	60.8	58.5	55.4	55.3	58.3	52.9
	Monthly mean	66.5	68.6	68.7	67.6	71.8	68.7	67.6	66.7	68.7	65.5
August	Highest	86.0	89.7	89.7	88.5	93.1	88.0	89.3	87.5	88.2	87.6
	Lowest	41.9	42.2	40.8	41.7	46.4	46.6	40.6	39.6	43.8	37.4
	Mean highest	73.9	76.9	77.9	77.2	80.4	76.4	77.5	75.8	76.2	74.8
	Mean lowest	55.3	55.8	54.5	52.3	58.4	53.6	53.3	53.0	55.4	50.2
	Monthly mean	64.6	61.3	61.2	64.7	69.4	65.0	65.4	64.4	65.8	62.5
September	Highest	84.6	86.8	86.3	85.6	90.4	84.6	85.9	83.7	84.1	84.1
	Lowest	34.3	33.8	31.9	31.5	36.8	36.8	31.8	31.4	33.5	29.3
	Mean highest	68.4	70.7	71.6	70.4	73.9	69.4	69.7	68.6	68.4	67.5
	Mean lowest	49.9	50.9	49.5	47.4	52.7	50.9	46.9	46.8	48.0	43.6
	Monthly mean	59.2	60.8	60.6	58.9	68.3	60.2	58.3	57.7	58.2	55.6
October	Highest	74.4	75.8	75.6	74.5	77.6	72.7	74.1	72.5	70.9	73.1
	Lowest	24.9	24.6	23.2	22.8	25.9	25.4	20.9	21.1	23.5	17.5
	Mean highest	56.1	56.9	57.9	56.5	60.7	56.2	55.5	55.1	53.8	53.2
	Mean lowest	39.5	40.5	38.1	36.7	41.2	39.9	36.1	36.5	36.8	33.0
	Monthly mean	47.8	48.7	48.0	46.6	50.9	48.1	45.8	45.8	45.3	43.1
November	Highest	60.8	62.3	61.9	61.3	64.9	59.7	59.1	58.5	57.0	55.5
	Lowest	14.1	12.9	12.7	11.5	17.3	14.9	5.9	7.4	6.8	− 0.5
	Mean highest	43.4	42.8	44.1	43.0	46.8	43.6	40.6	40.5	38.4	37.0
	Mean lowest	30.1	30.8	29.5	27.9	32.4	30.7	26.1	26.1	25.7	21.8
	Monthly mean	36.7	36.8	36.8	35.4	39.6	37.1	33.3	33.3	32.0	29.4
December	Highest	48.9	48.2	53.2	48.6	53.8	47.8	44.4	44.2	41.9	41.4
	Lowest	− 0.2	− 1.2	2.4	− 3.6	1.9	1.2	−13.8	14.8	−15.9	−26.1
	Mean highest	33.1	31.5	32.8	31.8	35.6	33.3	28.7	29.0	24.5	23.8
	Mean lowest	20.1	20.5	19.5	17.7	23.3	20.4	13.0	12.2	9.0	3.7
	Monthly mean	26.6	26.0	26.2	24.8	29.5	26.7	20.9	20.6	16.8	13 8
Annual mean		43.4	44.1	44.8	43.7	47.8	44.9	42.2	41.2	41.3	38.2

RAIN AND SNOW.

TABLE III.—Summary of the total fall of rain and snow, and the number of days on which rain and snow fell in Ontario, during 1910, at stations reporting the whole year, and the average for the Province.

Stations.	Rain.		Snow.	
	Inches.	Days.	Inches.	Days.
ALGOMA:				
Bruce Mines	24.42	76	77.9	25
BRANT:				
Brantford	21.03	65	61.8	26
Paris	28.71	87	61.3	33
BRUCE:				
North Bruce	22.41	88	81.4	62
Southampton	22.67	93	136.6	80
Wiarton	26.11	64	102.4	47
CARLETON:				
Ottawa	21.60	110	82.6	57
DUFFERIN:				
Orangeville	26.14	51	96.3	47
ESSEX:				
Cottam	25.32	66	74.0	31
Windsor	22.33	72	48.0	22
ELGIN:				
Dutton	18.81	35	33.0	15
Port Burwell	21.36	69	84.8	32
Port Stanley	27.55	108	108.7	72
FRONTENAC:				
Arden	20.93	84	40.0	21
Kingston	26.88	98	64.8	65
Sydenham	20.83	34	69.5	28
GREY:				
Owen Sound	16.08	43	181.8	61
HALTON:				
Georgetown	25.89	104	71.8	51
HASTINGS:				
Madoc	23.90	72	93.9	50
HURON:				
Clinton	25.23	88	120.2	65
Goderich	14.04	54	74.0	29
Lucknow	24.07	79	168.4	80
KENT:				
Chatham	26.00	57	53.0	11
LAMBTON:				
Birnam	30.10	82	129.8	40
LANARK:				
MacCue	17.20	44	40.0	16
Montague	16.61	40	43.1	19
LEEDS:				
Westport	21.55	54	72.1	29
MIDDLESEX:				
London	21.26	80	160.6	57
Strathroy	23.73	68	129.1	42
Westminster	26.90	37	94.5	18
MUSKOKA:				
Beatrice	22.15	67	137.4	57
Gravenhurst	23.15	67	111.9	64
NIPISSING:				
Copper Cliff	33.14	63	60.3	33
Haileybury	20.14	106	75.5	66
Lake Talon	19.23	60	58.0	28
NORFOLK:				
Port Dover	28.62	113	77.1	46
NORTHUMBERLAND:				
Wooler	24.33	55	44.0	18
ONTARIO:				
Uxbridge	24.82	76	85.0	46
OXFORD:				
Princeton	26.55	46	79.5	22
Woodstock	23.43	82	57.6	48
PARRY SOUND:				
Emsdale	24.75	90	92.4	54
Parry Sound	23.39	88	147.0	57
Uplands	22.18	64	80.0	45
PEEL:				
Alton	25.56	67	64.9	44
PETERBOROUGH:				
Otonabee	18.60	48	52.8	24
Peterborough	24.40	56	31.0	31
RENFREW:				
Renfrew	19.85	84	75.7	59
Stonecliffe	14.19	78	42.8	48
SIMCOE:				
Barrie	19.19	101	146.2	83
Coldwater	17.18	30	80.9	37
Midland	20.30	65	116.5	37
THUNDER BAY:				
Kakabeka Falls	13.13	57	47.8	25
Port Arthur	13.09	54	34.6	29
VICTORIA:				
Lindsay	44.93	90	111.5	55
WENTWORTH:				
Stoney Creek	22.73	68	81.9	21
WELLINGTON:				
Guelph	22.14	86	73.8	41
WELLAND:				
Welland	23.94	93	73.5	35
YORK:				
Aurora	20.59	58	75.9	38
Agincourt	23.43	81	62.4	55
Deer Park	25.31	71	43.3	26
Toronto	26.50	102	70.8	61
Toronto East	25.89	77	48.4	39
Average for the Province: 1910	23.01	76	80.3	44
1909	25.95	77	77.3	39
1908	18.76	65	85.3	40
1907	23.18	73	66.6	38
1906	27.06	76	52.4	32
1906-1910	23.59	73	72.4	39
1882-1910	24.34	84	73.5	40

RAIN AND SNOW.

TABLE IV. Monthly summary of inches of rain and snow in precipitation in the several districts of Ontario in 1910; also the average derived from the twenty-nine years, 1882-1910.

Districts.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
West and Southwest:		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Rain.	1910	1.18	1.07	0.54	2.93	3.71	1.43	4.22	2.21	2.32	3.09	1.82	0.10	24.62
	1882-1910	1.14	1.23	1.35	1.89	3.21	2.93	2.59	2.52	2.49	2.67	2.26	1.53	25.81
Snow.	1910	23.7	21.3	0.6	0.1						2.1	9.9	25.2	82.9
	1882-1910	15.4	13.3	8.1	2.5						0.7	5.1	12.5	57.6
North and Northwest:														
Rain.	1910	0.27	0.51	0.53	2.29	2.62	2.11	2.19	3.65	2.39	2.66	1.07	0.02	20.31
	1882-1910.	0.76	0.51	0.98	1.53	2.66	2.71	2.94	2.78	3.01	2.94	1.86	0.90	23.58
Snow.	1910	23.6	18.7	4.5	1.8	0.1					1.3	19.0	30.2	99.2
	1882-1910	25.1	20.7	12.9	3.6	0.4					1.5	12.4	22.8	99.4
Centre:														
Rain.	1910	1.30	0.66	0.63	4.37	2.71	1.19	3.41	2.78	2.59	2.79	1.50	0.24	24.17
	1882-1910	1.09	0.99	1.31	1.91	2.85	2.76	2.91	2.08	2.32	2.44	2.00	1.33	23.99
Snow.	1910	19.4	23.3	2.5	1.1						0.8	11.2	18.5	76.8
	1882-1910	17.5	14.9	9.5	3.0						0.6	5.3	12.2	63.0
East and North-east:														
Rain.	1910	1.63	0.60	0.91	2.56	2.33	1.24	2.68	4.10	2.52	2.96	1.00	0.02	22.55
	1882-1910	0.92	0.69	1.17	1.58	2.66	2.78	3.03	2.58	2.52	2.30	1.81	1.12	23.16
Snow.	1910	11.7	15.6	4.7	1.4						1.7	11.1	17.8	64.0
	1882-1910	20.6	16.9	10.7	3.2						0.8	7.3	14.9	74.4
The Province:														
Rain.	1910	1.09	0.71	0.65	3.04	2.84	1.49	3.12	3.18	2.45	2.87	1.35	0.09	22.88
	1882-1910	0.97	0.88	1.20	1.73	2.85	2.80	2.96	2.57	2.59	2 59	1.99	1.22	24.35
Snow.	1910	19.6	19.7	3.1	1.1	*					1.5	12.8	22.9	80.7
	1882-1910	19.5	16.4	10.3	3.1	*					0.9	7.5	15.6	73.3

SUNSHINE.

TABLE V. Monthly summary of bright sunshine at the principal stations in Ontario for 1910, showing the number of hours the sun was above the horizon, the hours of registered sunlight, the total for the year, and the average derived from the twenty-nine years, 1882-1910.

Stations.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
		hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Sun above the horizon		285.7	1291.4	369.9	406.4	461.1	465.7	470.9	434.5	376.3	340.2	286.9	274.3	4463.3
Woodstock	1910	38.8	96.4	164.5	141.4	145.6	254.5	283.3	209.9	177.9	162.1	39.2	54.0	1767.6
	1882-1910	62.4	88.8	122.1	172.1	204.4	245.9	274.5	237.7	175.4	147.1	72.4	53.8	1856.6
Toronto	1910	45.5	119.8	204.2	171.7	201.7	263.7	274.2	208.7	208.4	170.9	51.7	85.2	2005.7
	1882-1910	77.8	108.1	149.9	190.6	218.9	259.9	283.2	252.9	208.9	150.1	82.8	64.9	2048.0
Lindsay	1910	42.[illegible]	92.2	158.3	127.1	140.1	200.2	227.8	111.2	137.0	89.7	38.5	67.0	1435.0
	1882-1910	76.2	104.1	149.2	190.9	209.7	242.0	257.6	235.3	192.7	135.6	71.8	56.4	1921.5
Kingston	1910	49.1	105.4	126.9	148.2	194.7	262.0	294.2	253.7	171.3	138.3	40.1	73.2	1857.1
	1882-1910	75.9	109.7	149.0	186.1	201.3	251.9	268.1	251.8	190.1	139.0	77.5	66.9	1967.3
Ottawa	1910	88.8	124.1	214.8	174.5	198.1	232.4	265.1	237.6	202.0	153.1	46.8	93.1	2030.7
	1882-1910	82.6	108.[illegible]	145.[illegible]	184.4	221.1	225.0	244.7	239.0	166.9	127.1	83.5	58.1	1882.4
Average of five stations	1910	53.0	107.6	173.7	152.6	176.1	242.6	268.9	204.8	179.3	142.8	43.2	74.5	1819.1
	1909	67.1	76.6	141.7	156.7	191.5	261.3	266.0	273.4	182.4	128.1	95.5	55.9	1899.2
	1882-1910	73.3	103.4	142.7	184.8	214.5	245.3	265.5	242.6	186.7	139.8	77.5	60.4	1936.5

RURAL AREA ASSESSED.

TABLE VI.—Showing by County Municipalities the rural area of Ontario as returned by Municipal assessors for 1910; also the comparative totals for the Province for the five years, 1906-1910.

Counties and Districts.	Acres of assessed land.	Acres cleared.	Acres of woodland.	Acres of slash land.	Acres of swamp, marsh or waste land.	Per cent. cleared.
Algoma	312,886	43,418	228,427	12,259	28,782	13.88
Brant	215,614	177,773	10,611	15,387	11,843	82.45
Bruce	933,676	565,072	144,806	90,854	132,944	60.52
Carleton	561,949	352,209	51,646	114,589	43,505	62.68
Dufferin	356,285	264,120	27,144	27,197	37,824	74.13
Dundas	237,823	173,123	24,470	30,835	9,395	72.79
Durham	368,249	295,796	25,499	13,620	33,334	80.32
Elgin	436,291	352,067	57,823	20,877	5,524	80.70
Essex	427,546	329,252	46,412	43,112	8,770	77.01
Frontenac	702,711	283,964	128,386	177,641	112,720	40.41
Glengarry	287,857	197,510	53,052	12,942	24,353	68.61
Grenville	272,295	182,985	34,032	19,189	36,089	67.20
Grey	1,065,653	695,877	129,052	66,353	174,371	65.30
Haldimand	281,092	237,819	33,572	8,084	1,617	84.61
Haliburton	587,735	45,938	272,431	39,336	230,030	7.82
Halton	224,592	172,930	15,953	25,368	10,341	77.00
Hastings	1,061,889	429,206	287,690	141,948	203,045	40.42
Huron	797,779	654,537	55,465	23,455	64,322	82.04
Kent	566,294	456,487	40,115	51,225	18,467	80.61
Lambton	660,613	482,514	75,668	84,603	17,828	73.04
Lanark	670,035	324,981	178,822	69,395	96,837	48.50
Leeds	470,482	270,085	99,177	33,247	67,973	57.41
Lennox & Addington	447,118	259,098	102,322	32,530	53,168	57.95
Lincoln	190,544	162,222	16,467	10,502	1,353	85.14
Manitoulin	277,209	46,253	67,019	86,255	77,682	16.69
Middlesex	757,739	660,017	71,245	15,411	11,066	87.10
Muskoka	569,041	66,921	341,356	68,701	92,063	11.76
Nipissing	492,839	54,746	365,387	15,545	57,161	11.11
Norfolk	397,039	272,979	65,544	30,446	28,070	68.75
Northumberland	437,462	344,758	38,701	22,931	31,072	78.81
Ontario	504,436	371,214	26,199	45,275	61,748	73.59
Oxford	472,363	395,699	37,511	17,806	21,347	83.77
Parry Sound	619,107	84,710	342,026	63,395	128,976	13.68
Peel	288,677	263,398	9,142	4,461	11,676	91.24
Perth	518,244	445,917	35,853	25,939	10,535	86.04
Peterborough	572,083	251,669	126,944	103,214	90,256	43.99
Prescott	290,281	211,122	29,974	36,324	12,861	72.73
Prince Edward	234,639	196,200	19,100	2,896	16,443	83.62
Rainy River	347,410	25,858	225,446	45,690	50,416	7.44
Renfrew	1,043,476	356,901	399,791	122,730	164,054	34.20
Russell	250,555	131,775	32,734	81,812	4,234	52.59
Simcoe	991,053	663,774	127,176	143,305	56,798	66.98
Stormont	246,221	147,914	43,725	34,300	20,282	60.07
Sudbury	367,721	39,765	259,755	16,057	52,144	10.81
Thunder Bay	324,423	11,603	292,671	11,566	8,583	3.58
Victoria	599,178	285,067	64,283	97,564	152,264	47.58
Waterloo	306,543	252,436	32,447	4,825	16,835	82.35
Welland	227,331	184,842	20,021	12,968	9,500	81.31
Wellington	628,678	496,118	35,175	14,983	82,402	78.91
Wentworth	271,798	214,327	16,024	12,077	29,370	78.86
York	534,145	438,512	28,803	19,796	47,034	82.10
The Province.						
1910	24,706,699	14,323,478	5,293,094	2,320,820	2,769,307	57.97
1909	24,676,883	14,257,169	5,351,738	2,236,883	2,831,093	57.78
1908	24,497,406	14,132,061	5,331,654	2,273,251	2,760,440	57.69
1907	24,392,119	14,116,474	5,422,650	2,080,591	2,772,404	57.87
1906	24,284,730	14,107,015	5,449,125	1,963,350	2,765,240	58.09

NOTE.—Statistics for Kenora are included with Rainy River in this and following tables.

FALL WHEAT AND SPRING WHEAT.

TABLE VII.—Showing by County Municipalities of Ontario the area, produce and market value of Fall Wheat and Spring Wheat for the year 1910, together with the totals for the Province for the past five years, the average for the five years, 1906-1910, and the average for the twenty-nine years, 1882-1910.

Counties and Districts.	Fall Wheat.				Spring Wheat.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				$				$
Algoma	284	9,202	32.4	9,671	866	16,281	18.8	16,248
Brant	25,281	586,519	23.2	513,791	.....	.....	.....	.....
Bruce	36,343	930,381	25.6	781,520	2,741	61,124	22.3	49,083
Carleton	18	576	32.0	575	4,257	88,971	20.9	84,256
Dufferin	4,721	137,853	29.2	118,140	2,853	57,060	20.0	47,474
Dundas	238	6,236	26.2	5,949	227	5,130	22.6	4,920
Durham	6,811	216,590	31.8	197,313	5,762	88,159	15.3	76,434
Elgin	29,839	775,814	26.0	665,734	137	2,740	20.0	2,466
Essex	20,742	470,843	22.7	403,042	909	18,544	20.4	15,781
Frontenac	677	14,962	22.1	13,975	1,878	33,616	17.9	31,196
Glengarry	105	2,625	25.0	2,402	2,573	55,062	21.4	51,153
Glenville	60	1,356	22.6	1,267	719	14,164	19.7	13,215
Grey	26,144	752,947	28.8	636,993	4,536	88,452	19.5	72,973
Haldimand	29,874	672,165	22.5	577,390	409	7,198	17.6	5,881
Haliburton	6	104	17.4	103	324	5,346	16.5	4,838
Halton	18,650	436,410	23.4	380,986	667	10,539	15.8	8,684
Hastings	2,827	67,283	23.8	60,151	2,904	49,949	17.2	45,154
Huron	38,344	924,090	24.1	777,160	2,419	48,380	20.0	39,479
Kent	58,757	1,351,411	23.0	1,156,808	660	12,870	19.5	11,261
Lambton	32,737	844,615	25.8	717,078	517	11,477	22.2	10,192
Lanark	740	18,130	24.5	17,151	5,440	99,008	18.2	94,850
Leeds	973	22,379	23.0	21,820	1,030	19,982	19.4	18,863
Lennox and Add.	1,565	38,030	24.3	33,352	2,722	42,463	15.6	38,174
Lincoln	12,982	315,463	24.3	277,607	119	2,166	18.2	1,863
Manitoulin	536	15,866	29.6	14,708	1,108	22,936	20.7	21,308
Middlesex	50,444	1,377,121	27.3	1,209,112	127	2,515	19.8	2,253
Muskoka	22	660	30.0	627	469	10,787	23.0	9,751
Nipissing	224	6,630	29.6	7,552	827	19,186	23.2	20,587
Norfolk	31,513	699,589	22.2	621,235	164	2,640	16.1	2,178
Northumberland	9,662	287,928	29.8	261,151	2,782	43,121	15.5	37,817
Ontario	14,036	461,784	32.9	397,596	7,492	128,862	17.2	105,796
Oxford	29,374	843,034	28.7	744,399	659	12,389	18.8	10,543
Parry Sound	36	857	23.8	840	557	11,140	20.0	10,850
Peel	15,060	424,692	28.2	368,208	4,154	84,742	20.4	68,133
Perth	34,386	1,134,738	33.0	972,470	1,095	23,762	21.7	19,414
Peterborough	9,738	269,743	27.7	241,150	1,769	30,250	17.1	25,652
Prescott	50	1,250	25.0	1,088	3,710	70,490	19.0	69,856
Prince Edward	3,384	86,292	25.5	78,785	1,111	15,887	14.3	14,568
Rainy River	281	8,823	31.4	9,317	645	17,028	26.4	17,522
Renfrew	500	12,650	25.3	12,410	28,787	569,983	19.8	554,023
Russell	40	1,000	25.0	900	1,388	29,009	20.9	28,719
Simcoe	66,509	2,035,175	30.6	1,733,969	7,091	138,984	19.6	120,360
Stormont	32	694	21.7	633	528	11,774	22.3	11,527
Sudbury	64	1,408	22.0	1,549	581	13,131	22.6	14,168
Thunder Bay	9	225	25.0	214	275	6,270	22.8	5,894
Victoria	8,080	226,240	28.0	192,756	6,651	109,076	16.4	87,261
Waterloo	32,117	838,254	26.1	732,634	167	3,006	18.0	2,627
Welland	18,864	456,509	24.2	399,902	193	3,706	19.2	3,358
Wellington	11,856	352,123	29.7	306,347	4,337	97,149	22.4	80,439
Wentworth	22,411	546,828	24.4	489,411	333	5,794	17.4	4,919
York	35,527	1,151,075	32.4	1,003,737	7,650	167,535	21.9	136,038
The Province:								
1910	743,473	19,837,172	26.7	17,172,678	129,319	2,489,833	19.3	2,229,999
1909	663,375	15,967,653	24.1	16,335,950	135,161	2,223,567	16.5	2,237,189
1908	679,642	16,430,476	24.2	14,649,061	142,124	2,197,716	15.5	1,996,230
1907	676,164	15,545,491	23.0	14,410,670	144,514	2,473,651	17.1	2,137,234
1906	787,287	18,841,774	23.9	13,321,134	171,745	3,267,000	19.0	2,250,963
Average (5 years) 1906-1910	709,988	17,324,513	24.4	15,177,898	144,572	2,530,353	17.5	2,170,323
Average (29 years) 1882-1910	851,781	17,878,244	21.0	14,307,406	375,471	5,975,610	15.9	4,847,441

BARLEY AND OATS.

TABLE VIII.—Showing by County Municipalities of Ontario the area, produce and market value of Barley and Oats for the year 1910, together with the totals for the Province for the past five years, the average for the five years, 1906-1910, and the average for the twenty-nine years 1882-1910.

Counties and Districts.	Barley.				Oats.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				$				$
Algoma	1,871	52,388	28.0	33,476	8,672	322,598	37.2	137,427
Brant	10,113	300,356	29.7	156,786	28,813	1,025,743	35.6	348,753
Bruce	21,419	723,962	33.8	361,257	103,345	4,082,128	39.5	1,343,020
Carleton	9,226	302,613	32.8	156,148	92,285	3,349,946	36.3	1,149,031
Dufferin	19,570	643,853	32.9	316,132	65,746	2,629,840	40.0	815,250
Dundas	4,575	161,040	35.2	87,606	35,914	1,436,560	40.0	531,527
Durham	16,063	440,126	27.4	245,150	56,900	2,002,880	35.2	701,008
Elgin	7,515	240,480	32.0	132,745	46,712	1,859,138	39.8	693,458
Essex	7,857	234,924	29.9	119,576	70,573	2,477,112	35.1	790,199
Frontenac	5,694	148,044	26.0	89,419	47,697	1,335,516	28.0	523,522
Glengarry	6,725	210,493	31.3	116,403	46,321	1,862,104	40.2	638,702
Grenville	3,264	98,246	30.1	53,937	35,290	1,256,324	35.6	484,941
Grey	32,253	1,015,970	31.5	497,825	143,799	5,320,563	37.0	1,718,542
Haldimand	8,047	214,050	26.6	107,881	38,016	1,311,552	34.5	448,551
Haliburton	666	17,716	26.6	10,488	9,134	313,296	34.3	128,451
Halton	7,758	221,103	28.5	128,240	29,893	1,034,298	34.6	380,622
Hastings	16,330	378,856	23.2	207,613	83,220	2,571,498	30.9	1,002,884
Huron	30,898	1,146,316	37.1	567,426	126,450	5,348,835	42.3	1,765,116
Kent	19,994	629,811	31.5	323,093	68,193	2,830,010	41.5	950,883
Lambton	21,429	653,585	30.5	324,832	89,190	3,175,164	35.6	1,009,702
Lanark	6,657	175,079	26.3	96,644	48,153	1,406,068	29.2	521,651
Leeds	4,998	133,447	26.7	77,800	49,797	1,478,971	29.7	573,841
Lennox and Add.	10,735	272,669	25.4	149,150	45,727	1,435,828	31.4	518,334
Lincoln	2,600	79,820	30.7	41,427	24,250	943,325	38.9	348,087
Manitoulin	1,829	56,333	30.8	31,377	6,980	261,750	37.5	109,412
Middlesex	20,116	687,967	34.2	340,544	106,684	4,128,671	38.7	1,428,520
Muskoka	833	22,241	26.7	13,167	14,699	517,405	35.2	216,275
Nipissing	1,054	35,625	33.8	24,118	10,143	417,892	41.2	198,499
Norfolk	5,390	156,310	29.0	80,812	37,539	1,325,127	35.3	482,346
Northumberland	13,493	352,167	26.1	189,114	61,029	1,965,134	32.2	750,681
Ontario	26,236	690,007	26.3	353,284	76,025	2,805,323	36.9	925,757
Oxford	14,943	531,971	35.6	267,581	76,654	3,242,464	42.3	1,157,560
Parry Sound	1,124	28,325	25.2	18,326	17,740	581,872	32.8	248,459
Peel	24,927	687,985	27.6	364,632	53,392	1,895,416	35.5	653,919
Perth	28,181	1,087,787	38.6	523,226	90,913	3,881,985	42.7	1,269,409
Peterborough	8,000	199,200	24.9	99,998	57,291	1,804,667	31.5	646,071
Prescott	5,582	161,878	29.0	87,252	52,978	1,854,230	35.0	645,272
Prince Edward	11,776	266,138	22.6	147,174	26,617	798,510	30.0	311,419
Rainy River	959	26,948	28.1	18,190	4,589	181,266	39.5	88,095
Renfrew	5,268	139,075	26.4	67,869	67,252	2,273,118	33.8	818,322
Russell	4,052	134,932	33.3	70,974	30,163	1,251,765	41.5	416,838
Simcoe	59,339	1,756,434	29.6	895,781	138,613	5,184,126	37.4	1,726,314
Stormont	2,920	94,608	32.4	52,034	30,812	1,235,561	40.1	452,215
Sudbury	845	23,914	28.3	17,888	7,861	262,557	33.4	127,340
Thunder Bay	421	12,967	30.8	7,132	2,893	116,877	40.4	52,595
Victoria	16,837	427,660	25.4	211,692	65,183	2,157,557	33.1	707,679
Waterloo	14,391	414,461	28.8	224,223	53,381	1,836,306	34.4	666,579
Welland	2,368	63,936	27.0	35,101	27,109	1,008,455	37.2	393,297
Wellington	29,039	1,010,557	34.8	510,331	111,032	4,630,034	41.7	1,574,212
Wentworth	10,309	313,394	30.4	171,740	37,283	1,509,962	40.5	557,176
York	39,655	1,225,340	30.9	705,796	98,988	4,147,597	41.9	1,551,201
The Province:								
1910	626,144	19,103,107	30.5	9,930,410	2,757,933	102,084,924	37.0	35,698,964
1909	695,262	18,776,777	27.0	10,286,328	2,695,585	90,235,579	33.5	35,612,676
1908	734,029	20,888,569	28.5	10,943,788	2,774,259	96,626,419	34.8	38,987,985
1907	766,891	21,718,332	28.3	12,900,689	2,932,509	83,524,301	28.5	40,759,859
1906	756,163	25,253,011	33.4	11,363,855	2,716,711	108,341,455	39.9	36,836,095
Average (5 years) 1906-1910	715,698	21,147,959	29.5	11,085,014	2,775,399	96,162,535	34.6	37,579,116
Average (29 yrs.) 1882-1910	652,303	18,115,316	27.8	8,708,675	2,203,132	78,663,994	35.7	26,081,711

PEAS AND BEANS.

TABLE IX.—Showing by County Municipalities of Ontario the area, produce and market value of Peas and Beans for the year 1910, together with the totals of the Province for the past five years and the average for the five years, 1906-1910; and the average for the twenty-nine years, 1882-1910.

Counties and Districts.	Peas.				Beans.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				$				$
Algoma	3,041	62,036	20.4	53,909	15	225	15.0	450
Brant	2,587	35,959	13.9	26,466	328	6,035	18.4	9,053
Bruce	37,359	549,177	14.7	424,514	234	4,680	20.0	8,892
Carleton	2,782	52,302	18.8	47,804	391	5,630	14.4	10,753
Dufferin	8,660	142,890	16.5	106,739	12	192	16.0	361
Dundas	552	12,199	22.1	10,113	212	3,816	18.0	6,602
Durham	22,944	259,267	11.3	240,341	414	7,866	19.0	12,350
Elgin	3,469	54,116	15.6	41,399	8,202	155,838	19.0	229,082
Essex	1,842	24,314	13.2	20,667	216	3,758	17.4	6,201
Frontenac	2,159	33,249	15.4	28,594	444	7,104	16.0	11,508
Glengarry	1,103	23,163	21.0	20,916	76	1,520	20.0	2,614
Grenville	538	12,266	22.8	10,586	158	3,002	19.0	5,404
Grey	34,143	491,659	14.4	382,511	348	5,220	15.0	7,830
Haldimand	6,044	77,968	12.9	59,801	255	4,259	16.7	8,007
Haliburton	1,182	22,103	18.7	19,694	12	240	20.0	439
Halton	6,084	85,176	14.0	65,841	35	420	12.0	756
Hastings	9,240	138,600	15.0	114,761	358	7,661	21.4	12,641
Huron	25,322	349,444	13.8	264,879	784	13,798	17.6	20,973
Kent	3,052	56,462	18.5	49,009	26,362	471,880	17.9	726,695
Lambton	3,364	60,888	18.1	46,884	1,292	23,644	18.3	36,885
Lanark	4,005	60,075	15.0	46,078	328	4,789	14.6	7,662
Leeds	927	16,871	18.2	13,767	215	2,795	13.0	4,919
Lennox and Add'ton	4,323	53,173	12.3	43,761	261	4,098	15.7	6,803
Lincoln	2,879	36,851	12.8	29,370	268	4,824	18.0	8,587
Manitoulin	4,763	56,680	11.9	48,405	6	120	20.0	228
Middlesex	8,128	134,925	16.6	103,622	1,690	29,068	17.2	44,183
Muskoka	2,130	38,979	18.3	33,561	6	96	16.0	170
Nipissing	2,381	48,096	20.2	45,451	27	405	15.0	729
Norfolk	2,750	41,525	15.1	30,230	1,505	29,649	19.7	44,177
Northumberland	19,390	205,534	10.6	189,091	763	13,734	18.0	21,425
Ontario	17,019	243,372	14.3	195,428	361	5,776	16.0	9,011
Oxford	5,571	110,863	19.9	86,141	153	2,708	17.7	4,035
Parry Sound	3,405	64,355	18.9	58,241	8	136	17.0	245
Peel	6,042	109,964	18.2	84,672	66	990	15.0	1,584
Perth	12,192	219,456	18.0	163,714	16	240	15.0	420
Peterborough	16,894	209,486	12.4	195,869	144	2,304	16.0	4,147
Prescott	1,094	21,442	19.6	20,070	264	5,280	20.0	9,451
Prince Edward	7,068	102,486	14.5	85,678	908	14,982	16.5	21,874
Rainy River	81	1,175	14.5	1,128	5	75	15.0	150
Renfrew	16,768	249,843	14.9	204,621	358	5,370	15.0	8,807
Russell	913	22,369	24.5	20,736	160	3,040	19.0	4,773
Simcoe	28,483	432,942	15.2	343,756	379	5,912	15.6	9,459
Stormont	184	3,496	19.0	2,975	115	2,300	20.0	3,910
Sudbury	1,764	40,043	22.7	39,122	9	171	19.0	342
Thunder Bay	95	2,280	24.0	2,234	.....	.....	.....	.....
Victoria	12,433	157,899	12.7	126,793	94	1,410	15.0	2,228
Waterloo	6,833	98,395	14.4	76,945	117	1,872	16.0	3,519
Welland	1,991	28,471	14.3	22,492	1,019	17,425	17.1	34,502
Wellington	16,045	293,624	18.3	226,090	12	240	20.0	401
Wentworth	2,825	41,245	14.6	32,130	147	2,940	20.0	5,086
York	18,571	326,850	17.6	249,387	226	3,390	15.0	6,475
The Province:								
1910	403,414	6,016,003	14.9	4,856,986	49,778	892,927	17.9	1,386,798
1909	381,609	7,613,656	20.0	6,437,685	45,029	826,344	18.4	1,334,325
1908	396,612	7,401,336	18.7	6,121,449	46,477	783,757	16.9	1,160,103
1907	340,977	7,365,036	21.6	5,744,728	47,562	790,269	16.6	1,201,209
1906	410,356	7,388,987	18.0	5,216,625	51,272	950,312	18.5	1,320,934
Average (5 years): 1906-1910	386,599	7,157,004	18.5	5,675,494	48,028	848,722	17.7	1,280,674
Average (29 years): 1882-1910	619,805	11,986,718	19.3	7,249,685	42,314	727,644	17.2	846,680

RYE AND BUCKWHEAT.

TABLE X.—Showing by County Municipalities of Ontario the area, produce and market value of Rye and Buckwheat for the year 1910, together with the totals for the Province for the past five years; the average for the five years, 1906-1910; and the average for the twenty-nine years, 1882-1910.

Counties and Districts.	Rye.				Buckwheat.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				$				$
Algoma	185	3,700	20.0	2,590	134	3,484	26.0	2,369
Brant	3,665	67,803	18.5	43,869	2,245	51,860	23.1	25,723
Bruce	1,337	25,002	18.7	16,126	3,148	79,644	25.3	40,618
Carleton	1,843	35,386	19.2	22,824	6,342	167,429	26.4	88,570
Dufferin	3,564	70,924	19.9	42,838	4,928	121,722	24.7	56,722
Dundas	372	9,337	25.1	6,732	2,160	60,480	28.0	32,417
Durham	6,289	103,769	16.5	65,582	9,389	234,725	25.0	118,067
Elgin	2,489	46,793	18.8	30,603	3,462	69,932	20.2	37,833
Essex	1,080	20,736	19.2	14,412	1,749	42,501	24.3	22,356
Frontenac	2,653	40,591	15.3	27,358	3,724	96,079	25.8	52,363
Glengarry	105	1,575	15.0	1,071	2,037	48,481	23.8	26,422
Grenville	922	18,163	19.7	13,096	5,208	137,491	26.4	69,845
Grey	680	11,968	17.6	7,300	4,777	118,470	24.8	58,643
Haldimand	415	7,512	18.1	4,755	1,635	28,940	17.7	14,007
Haliburton	50	880	17.6	557	612	14,994	24.5	8,577
Halton	79	1,288	16.3	853	434	8,984	20.7	4,681
Hastings	4,582	68,272	14.9	42,329	8,225	195,755	23.8	101,988
Huron	343	5,968	17.4	3,640	4,152	97,572	23.5	49,079
Kent	569	10,811	19.0	6,595	850	18,105	21.3	8,654
Lambton	260	5,408	20.8	3,407	580	14,906	25.7	7,647
Lanark	1,340	20,904	15.6	12,605	5,950	142,205	23.9	71,671
Leeds	1,350	27,945	20.7	19,953	4,024	90,138	22.4	51,198
Lennox and Add.	2,352	33,869	14.4	22,184	7,247	196,394	27.1	94,073
Lincoln	594	11,048	18.6	7,236	386	6,948	18.0	3,432
Manitoulin	587	11,094	18.9	7,267	147	2,940	20.0	1,691
Middlesex	936	17,503	18.7	11,692	922	18,440	20.0	9,589
Muskoka	189	3,364	17.8	2,160	291	5,966	20.5	3,502
Nipissing	47	940	20.0	600	148	4,440	30.0	2,664
Norfolk	11,074	158,358	14.3	100,716	11,522	245,419	21.3	118,538
Northumberland	10,545	171,884	16.3	107,599	14,728	344,635	23.4	169,905
Ontario	7,072	122,346	17.3	77,323	10,868	261,919	24.1	127,293
Oxford	1,198	21,205	17.7	13,126	2,386	55,594	23.3	28,297
Parry Sound	125	2,363	18.9	1,656	101	1,808	17.9	1,141
Peel	2,092	38,074	18.2	23,872	3,158	82,108	26.0	40,151
Perth	172	2,580	15.0	1,754	1,319	32,975	25.0	17,675
Peterborough	2,190	32,850	15.0	19,283	5,927	143,433	24.2	68,418
Prescott	185	2,590	14.0	1,554	1,716	41,184	24.0	23,475
Prince Edward	5,674	91,919	16.2	57,725	6,340	149,624	23.6	72,717
Rainy River								
Renfrew	4,667	81,206	17.4	47,749	3,196	68,075	21.3	33,425
Russell	62	1,240	20.0	744	1,389	39,309	28.3	20,087
Simcoe	4,469	82,677	18.5	50,516	11,813	251,617	21.3	120,273
Stormont	162	3,240	20.0	2,103	3,528	105,840	30.0	54,296
Sudbury	88	1,496	17.0	1,047	108	2,560	23.7	1,536
Thunder Bay	26	468	18.0	328	4	60	15.0	42
Victoria	1,555	22,548	14.5	13,596	8,595	216,594	25.2	102,016
Waterloo	1,198	22,882	19.1	15,194	1,931	45,185	23.4	24,310
Welland	809	16,180	20.0	9,902	2,655	59,207	22.3	31,024
Wellington	464	9,187	19.8	5,650	10,047	249,166	24.8	120,098
Wentworth	879	15,119	17.2	9,873	1,796	43,104	24.0	23,233
York	1,814	37,368	20.6	23,243	6,880	175,440	25.5	84,036
The Province:								
1910	95,397	1,620,333	17.0	1,024,787	194,913	4,693,881	24.1	2,346,387
1909	94,661	1,573,921	16.6	1,060,566	176,630	4,280,790	24.2	2,284,440
1908	87,908	1,453,616	16.5	1,012,953	140,605	3,323,668	23.6	1,799,890
1907	67,158	1,039,021	15.5	721,081	113,039	2,546,468	22.5	1,461,673
1906	79,870	1,327,582	16.6	808,497	106,444	1,792,903	16.8	887,487
Average (5 years) 1906–1910	84,999	1,402,895	16.5	925,577	146,326	3,327,542	22.7	1,755,975
Average (29 years) 1882–1910	115,649	1,894,183	16.4	1,015,533	107,758	2,189,908	20.3	967,789

CORN.*

TABLE XI.—Showing by County Municipalities of Ontario, the area, produce and market value of Corn for husking and for fodder for the year 1910, together with the totals for the Province for the past five years, the average for the five years 1906-1910; and the average for the nineteen years, 1892-1910, also the average yield.

Counties and Districts.	Corn for husking.				Corn for silo.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Tons (green.)	Per acre.	Market value.
				$				$
Algoma	42	1,680	40.0	756	197	1,970	10.00	3,940
Brant	4,814	393,785	81.8	147,669	6,363	74,956	11.78	149,912
Bruce	535	26,750	50.0	10,807	9,007	83,855	9.31	167,710
Carleton	960	57,600	60.0	22,694	13,834	175,692	12.70	351,384
Dufferin	220	11,000	50.0	3,663	1,348	17,861	13.25	35,722
Dundas	3,103	233,966	75.4	95,224	9,601	127,021	13.23	254,042
Durham	1,472	119,821	81.4	46,491	5,281	67,227	12.73	134,454
Elgin	23,347	2,038,193	87.3	827,506	10,688	99,292	9.29	198,584
Essex	78,336	5,749,862	73.4	1,908,954	2,942	16,004	5.44	32,008
Frontenac	3,380	260,260	77.0	118,418	6,233	64,013	10.27	128,026
Glengarry	788	53,190	67.5	23,829	5,969	82,253	13.78	164,506
Grenville	4,195	245,827	58.6	109,885	6,902	91,244	13.22	182,488
Grey	509	25,450	50.0	10,384	9,783	105,559	10.79	211,118
Haldimand	3,501	256,973	73.4	101,504	3,007	28,717	9.55	57,434
Haliburton	132	6,930	52.5	3,257	335	3,574	10.67	7,148
Halton	777	46,620	60.0	18,601	4,298	50,931	11.85	101,862
Hastings	6,479	434,093	67.0	182,753	12,018	147,221	12.25	294,442
Huron	1,316	91,330	69.4	33,518	12,474	146,445	11.74	292,890
Kent	65,000	5,583,500	85.9	1,915,141	4,347	33,994	7.82	67,988
Lambton	24,975	2,012,985	80.6	744,804	11,384	132,054	11.60	264,108
Lanark	1,700	78,200	46.0	35,346	10,225	133,845	13.09	267,690
Leeds	5,976	479,275	80.2	208,485	10,821	125,091	11.56	250,182
Lennox and Add.	4,080	317,832	77.9	129,358	4,101	41,543	10.13	83,086
Lincoln	6,968	560,227	80.4	243,139	3,024	32,175	10.64	64,350
Manitoulin	113	4,520	40.0	2,034	478	5,378	11.25	10,756
Middlesex	17,259	1,373,816	79.6	528,919	17,783	208,772	11.74	417,544
Muskoka	226	13,560	60.0	5,695	467	5,291	11.33	10,582
Nipissing	94	3,760	40.0	1,504	98	980	10.00	1,960
Norfolk	17,633	1,382,427	78.4	532,234	6,485	68,482	10.56	136,964
Northumberland	3,382	202,920	60.0	82,588	7,708	81,628	10.59	163,256
Ontario	1,817	136,275	75.0	49,604	9,046	109,004	12.05	218,008
Oxford	8,015	639,597	79.8	275,027	24,709	283,659	11.48	567,318
Parry Sound	156	6,240	40.0	2,615	354	3,965	11.20	7,930
Peel	374	22,440	60.0	8,393	5,959	67,039	11.25	134,078
Perth	340	20,400	60.0	8,344	12,684	159,818	12.60	319,636
Peterborough	459	23,776	51.8	11,888	4,274	47,869	11.20	95,738
Prescott	2,726	187,549	68.8	90,774	2,925	33,521	11.46	67,042
Prince Edward	7,326	539,194	73.6	235,089	6,295	73,714	11.71	147,428
Rainy River	31	930	30.0	419	.....	.....	.....	.....
Renfrew	1,008	60,480	60.0	26,188	5,225	62,700	12.00	125,400
Russell	952	66,640	70.0	28,189	5,031	64,799	12.88	129,598
Simcoe	1,675	85,425	51.0	35,195	7,904	88,051	11.14	176,102
Stormont	1,880	129,720	69.0	53,964	7,402	106,071	14.33	212,142
Sudbury	32	1,280	40.0	512	53	530	10.00	1,060
Thunder Bay	.....	.....	.....	.....	.....	.....	.....	.....
Victoria	288	17,280	60.0	6,342	4,429	47,169	10.65	94,338
Waterloo	1,033	68,901	66.7	26,113	7,698	94,224	12.24	188,448
Welland	8,066	606,563	75.2	253,543	2,390	20,530	8.59	41,060
Wellington	220	11,000	50.0	4,279	4,862	60,775	12.50	121,550
Wentworth	1,962	157,745	80.4	65,937	6,602	74,008	11.21	148,016
York	847	52,599	62.1	23,670	11,584	137,850	11.90	275,700
The Province:								
1910	320,519	24,900,386	77.7	9,301,245	326,627	3,788,364	11.60	7,576,728
1909	322,789	22,619,690	70.1	9,705,826	288,346	3,374,655	11.70	6,749,310
1908	299,690	23,601,122	78.8	9,440,336	233,753	2,729,265	11.68	5,458,530
1907	338,573	21,899,466	64.7	6,219,448	200,354	2,029,547	10.13	4,059,094
1906	289,456	23,988,682	82.9	9,019,744	180,796	2,149,413	11.89	4,298,826
Average (5 years).								
1906-1910	314,205	23,401,869	74.5	8,737,320	245,975	2,814,249	11.44	5,628,498
Average (19 years)								
1892-1910	309,872	22,113,412	71.4	6,908,414	189,656	2,175,287	11.46	4,350,574

* The combined average for corn for the twenty-nine years, 1882-1910, is 394,821 acres, the average value of the produce for the same period being $8,654,731.

POTATOES AND CARROTS.

TABLE XII.—Showing by County Municipalities of Ontario, the area, produce and market value of Potatoes and Carrots for the year 1910, together with the totals for the Province for the past five years, the average for the five years, 1906-1910; and the average for the twenty-nine years, 1882-1910.

Counties and Districts.	Potatoes.				Carrots.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				$				$
Algoma	1,232	195,888	159	104,604	40	11,320	283	1,415
Brant	3,032	412,352	136	214,835	36	11,592	322	1,449
Bruce	4,385	534,970	122	221,478	224	45,696	204	5,712
Carleton	6,168	888,192	144	524,921	122	24,400	200	3,050
Dufferin	3,454	473,198	137	216,251	46	18,400	400	2,300
Dundas	1,926	258,084	134	130,591	32	6,464	202	808
Durham	3,380	432,640	128	208,965	45	15,750	350	1,969
Elgin	3,517	418,523	119	204,658	65	25,805	397	3,226
Essex	3,629	362,900	100	192,700	51	19,533	383	2,442
Frontenac	4,188	598,884	143	310,222	72	18,576	258	2,322
Glengarry	2,515	279,165	111	155,216	50	10,000	200	1,250
Grenville	2,797	394,377	141	205,076	61	18,300	300	2,288
Grey	6,280	910,600	145	382,452	151	38,958	258	4,870
Haldimand	1,931	177,652	92	95,754	35	11,690	334	1,461
Haliburton	715	97,240	136	44,244	18	3,600	200	450
Halton	1,935	216,720	112	113,778	24	9,528	397	1,191
Hastings	6,283	848,205	135	406,290	66	22,374	339	2,797
Huron	4,496	647,424	144	268,681	118	42,480	360	5,310
Kent	4,017	518,193	129	264,278	51	22,440	440	2,805
Lambton	3,777	498,564	132	228,342	178	59,452	334	7,431
Lanark	2,525	328,250	130	165,438	30	11,130	371	1,391
Leeds	3,002	333,222	111	193,935	50	13,000	260	1,625
Lennox & Adding'n	3,411	375,210	110	182,727	72	14,616	203	1,827
Lincoln	2,056	261,112	127	147,528	55	20,350	370	2,544
Manitoulin	920	142,600	155	79,713	64	24,832	388	3,104
Middlesex	6,670	913,790	137	393,843	88	27,632	314	3,454
Muskoka	1,526	253,316	166	123,112	96	30,240	315	3,780
Nipissing	1,556	297,196	191	155,731	60	15,780	263	1,972
Norfolk	3,907	355,537	91	159,636	80	19,040	238	2,380
Northumberland	4,368	585,312	134	273,926	167	45,758	274	5,720
Ontario	4,343	521,160	120	240,255	53	15,900	300	1,988
Oxford	3,220	450,800	140	213,679	38	13,680	360	1,710
Parry Sound	1,690	305,890	181	148,663	70	21,210	303	2,651
Peel	3,349	375,088	112	183,043	66	20,328	308	2,541
Perth	3,107	487,799	157	222,924	44	14,124	321	1,765
Peterborough	2,849	361,823	127	183,806	30	11,880	396	1,485
Prescott	2,765	340,095	123	190,453	90	27,630	307	3,454
Prince Edward	2,298	163,158	71	81,905	34	8,500	250	1,063
Rainy River	667	86,043	129	75,116	14	2,982	213	373
Renfrew	3,717	498,078	134	255,514	85	17,850	210	2,231
Russell	1,363	207,176	152	125,341	98	22,050	225	2,756
Simcoe	9,110	1,193,410	131	496,459	176	56,672	322	7,084
Stormont	1,956	238,632	122	129,339	64	23,488	367	2,936
Sudbury	1,032	200,208	194	108,513	61	12,200	200	1,525
Thunder Bay	972	188,568	194	110,501	40	8,000	200	1,000
Victoria	2,606	367,446	141	158,369	16	3,728	233	466
Waterloo	3,261	430,452	132	205,326	50	21,450	429	2,681
Welland	3,248	331,296	102	196,127	39	12,870	330	1,609
Wellington	4,653	660,726	142	299,970	43	14,835	345	1,854
Wentworth	4,692	619,344	132	354,265	48	14,400	300	1,800
York	7,958	891,296	112	450,104	145	46,835	323	5,854
The Province:								
1910	168,454	21,927,804	130	10,798,597	3,551	1,049,348	296	131,169
1909	169,695	24,645,283	145	8,989,452	3,506	1,001,653	286	125,207
1908	166,974	18,517,642	111	8,874,201	4,080	1,120,145	275	140,018
1907	177,186	20,057,675	113	11,693,625	*4,530	*1,585,500	*350	*198,187
1906	136,064	15,020,299	110	8,080,921	4,980	1,598,698	321	199,837
Average (5 years):								
1906-1910	163,674	20,033,741	122	9,687,359	4,129	1,271,069	308	158,884
Average (29 years):								
1882-1910	157,499	18,313,312	116	7,718,202	9,141	3,153,922	345	394,240

*Estimated.

MANGEL-WURZELS AND TURNIPS.

TABLE XIII. Showing by County Municipalities of Ontario the area, produce and market value of Mangel-Wurzels and Turnips for the year 1910, together with the totals for the Province for the past five years, the average for the five years, 1906-1910, and the average for the twenty-nine years, 1882-1910.

Counties and Districts.	Mangel-Wurzels.				Turnips.			
	Acres.	Bushels.	Per Acre.	Market Value.	Acres.	Bushels.	Per Acre.	Market value.
				$				$
Algoma	44	12,100	275	968	518	161,098	311	16,110
Brant	1,516	868,668	573	69,493	2,342	1,112,450	475	111,245
Bruce	4,363	1,854,275	425	148,342	4,178	1,863,388	446	186,339
Carleton	718	233,350	325	18,668	2,270	896,650	395	89,665
Dufferin	930	415,710	447	33,257	3,438	1,619,298	471	161,930
Dundas	148	61,124	413	4,890	200	58,600	293	5,860
Durham	2,284	1,379,536	604	110,363	4,891	2,626,467	537	262,647
Elgin	689	301,782	438	24,143	227	108,052	476	10,805
Essex	633	279,786	442	22,383	79	18,565	235	1,856
Frontenac	324	125,712	388	10,057	469	142,576	304	14,258
Glengarry	133	43,624	328	3,490	822	300,852	366	30,085
Grenville	170	69,530	409	5,562	248	93,000	375	9,300
Grey	3,722	1,511,132	406	120,890	7,281	3,130,830	430	313,083
Haldimand	420	164,640	392	13,171	89	35,867	403	3,587
Haliburton	24	4,344	181	348	292	87,600	300	8,760
Halton	1,854	982,620	530	78,610	1,010	397,940	394	39,794
Hastings	393	165,060	420	13,205	1,515	631,755	417	63,175
Huron	6,475	3,509,450	542	280,756	4,393	1,963,671	447	196,367
Kent	870	475,890	547	38,071	248	103,912	419	10,391
Lambton	1,320	572,880	434	45,830	264	108,504	411	10,850
Lanark	360	153,000	425	12,240	1,430	703,560	492	70,356
Leeds	243	82,620	340	6,610	547	177,228	324	17,723
Lennox & Addingt'n	103	31,209	303	2,497	343	109,760	320	10,976
Lincoln	320	166,720	521	13,338	87	34,278	394	3,428
Manitoulin	91	36,400	400	2,912	347	147,475	425	14,748
Middlesex	2,545	1,501,550	590	120,124	1,911	949,767	497	94,977
Muskoka	73	31,317	429	2,505	536	205,288	383	20,529
Nipissing	84	24,948	297	1,996	435	135,285	311	13,529
Norfolk	430	175,870	409	14,070	842	270,282	321	27,028
Northumberland	945	461,160	488	36,893	4,211	2,273,940	540	227,394
Ontario	4,215	2,162,295	513	172,984	10,666	4,735,704	444	473,570
Oxford	2,986	1,830,418	613	146,433	5,290	2,692,610	509	269,261
Parry Sound	49	15,337	313	1,227	1,029	419,832	408	41,983
Peel	1,519	721,525	475	57,722	1,345	618,700	460	61,870
Perth	5,494	3,466,714	631	277,337	3,870	1,954,350	505	195,435
Peterborough	1,188	618,948	521	49,516	2,287	1,349,330	590	134,933
Prescott	134	48,240	360	3,859	448	151,424	338	15,142
Prince Edward	155	58,125	375	4,650	81	16,200	200	1,620
Rainy River	28	8,176	292	654	121	35,574	294	3,557
Renfrew	252	57,456	228	4,596	817	196,897	241	19,690
Russell	242	94,380	390	7,550	757	340,650	450	34,065
Simcoe	2,824	1,338,576	474	107,086	8,072	3,374,096	418	337,410
Stormont	76	44,080	580	3,526	160	56,000	350	5,600
Sudbury	40	16,000	400	1,280	319	94,105	295	9,410
Thunder Bay	4	1,200	300	96	116	34,800	300	3,480
Victoria	1,645	644,840	392	51,587	4,984	2,182,992	438	218,299
Waterloo	3,836	2,029,244	529	162,340	3,330	1,578,420	474	157,842
Welland	184	71,576	389	5,726	136	42,160	310	4,216
Wellington	4,660	2,330,000	500	186,400	10,742	5,199,128	484	519,913
Wentworth	2,041	1,163,370	570	93,070	1,894	899,650	475	89,965
York	5,170	2,269,630	439	181,570	6,433	2,984,912	464	298,491
The Province:								
1910	68,966	34,686,137	503	2,774,891	108,360	49,425,472	456	4,942,547
1909	70,488	28,928,347	410	2,314,267	113,400	50,738,940	447	5,073,894
1908	67,937	29,870,966	440	2,389,677	120,920	41,210,189	341	4,121,019
1907	68,644	30,260,315	441	2,420,825	123,011	48,205,605	392	4,820,561
1906	69,352	32,863,192	474	2,629,055	132,512	57,060,151	431	5,706,015
Average (5 years):								
1906-1910	69,077	31,321,791	453	2,505,743	119,640	49,328,071	412	4,932,807
Average (29 years):								
1882-1910	42,708	19,598,576	459	1,567,886	126,144	54,267,079	430	5,428,517

SUGAR BEETS—HAY AND CLOVER.

TABLE XIV.—Showing by County Municipalities of Ontario the area, produce and market value of Sugar Beets and Hay and Clover for the year 1910, together with the totals for the Province for the past five years; the average for the five years, 1906-1910, and the average for the twenty-nine years, 1882-1910.

Counties and Districts.	Sugar Beets.				Hay and Clover.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Tons.	Per acre.	Market value.
				$				$
Algoma	13	3,250	250	390	16,879	29,707	1.76	341,333
Brant	456	229,824	504	27,579	34,361	59,101	1.72	644,792
Bruce	378	132,300	350	15,876	124,803	213,413	1.71	1,814,011
Carleton	341	150,040	440	18,005	84,499	147,028	1.74	1,379,123
Dufferin	486	180,792	372	21,695	56,529	89,316	1.58	827,959
Dundas	113	34,804	308	4,176	46,341	94,072	2.03	767,628
Durham	205	117,875	575	14,145	55,539	88,307	1.59	998,752
Elgin	361	111,188	308	13,343	70,663	123,660	1.75	1,200,739
Essex	994	319,074	321	38,289	58,097	99,927	1.72	925,324
Frontenac	108	36,720	340	4,406	85,774	161,255	1.88	1,527,085
Glengarry	100	29,400	294	3,528	61,836	123,672	2.00	960,931
Grenville	202	69,892	346	8,387	46,588	86,654	1.86	814,548
Grey	678	271,200	400	32,544	154,402	240,867	1.56	2,471,295
Haldimand	70	30,800	440	3,696	71,032	111,520	1.57	1,021,523
Haliburton	9	1,260	140	151	14,058	21,368	1.52	233,339
Halton	145	78,445	541	9,413	38,425	63,017	1.64	812,289
Hastings	125	38,250	306	4,590	99,366	202,707	2.04	1,990,583
Huron	543	230,775	425	27,693	128,550	215,964	1.68	1,928,559
Kent	9,448	4,251,600	450	510,192	80,148	151,480	1.89	1,376,953
Lambton	3,069	1,101,771	359	132,213	97,825	173,150	1.77	1,430,219
Lanark	255	98,175	385	11,781	65,680	114,940	1.75	1,203,422
Leeds	193	60,409	313	7,250	65,304	136,485	2.09	1,276,135
Lennox and Add.	81	17,010	210	2,041	79,274	133,973	1.69	1,102,598
Lincoln	267	119,883	449	14,386	46,548	78,201	1.68	874,287
Manitoulin	23	8,924	388	1,071	17,354	28,461	1.64	243,911
Middlesex	634	295,444	466	35,453	115,364	178,814	1.55	1,991,988
Muskoka	20	7,260	363	871	26,253	45,155	1.72	481,804
Nipissing	47	14,664	312	1,760	19,051	37,721	1.98	473,776
Norfolk	316	127,980	405	15,358	54,795	90,960	1.66	816,821
Northumberland	194	67,900	350	8,148	65,657	106,364	1.62	1,196,595
Ontario	274	102,750	375	12,330	69,802	114,475	1.64	1,262,659
Oxford	780	387,660	497	46,519	74,433	123,559	1.66	1,361,620
Parry Sound	19	5,453	287	654	31,509	51,990	1.65	533,937
Peel	369	119,925	325	14,391	53,498	79,177	1.48	986,545
Perth	367	198,180	540	23,782	95,542	170,065	1.78	1,542,490
Peterborough	98	48,902	499	5,868	52,464	87,615	1.67	943,614
Prescott	136	42,568	313	5,108	72,528	139,254	1.92	1,094,536
Prince Edward	78	23,400	300	2,808	47,632	91,453	1.92	823,077
Rainy River	16	4,304	269	516	13,946	13,946	1.00	254,515
Renfrew	158	23,700	150	2,844	87,017	153,150	1.76	1,330,874
Russell	68	22,100	325	2,652	41,831	73,214	1.75	559,355
Simcoe	976	362,096	371	43,452	108,372	186,400	1.72	2,009,392
Stormont	52	25,064	482	3,008	40,716	87,132	2.14	740,622
Sudbury	17	5,525	325	663	19,045	39,614	2.08	448,827
Thunder Bay	2	500	250	60	5,182	3,368	.65	55,808
Victoria	56	19,600	350	2,352	55,623	82,322	1.48	817,457
Waterloo	1,522	707,730	465	84,928	48,205	81,466	1.69	1,006,920
Welland	83	30,129	363	3,615	56,643	99,692	1.76	971,000
Wellington	686	286,062	417	34,327	113,127	168,559	1.49	1,744,586
Wentworth	406	205,436	506	24,652	46,798	69,729	1.49	922,515
York	842	380,584	452	45,670	89,113	129,214	1.45	1,868,434
The Province:								
1910	26,879	11,238,577	418	1,348,629	3,204,021	5,492,653	1.71	54,407,105
1909	19,812	7,001,565	353	840,188	3,228,445	3,885,145	1.20	49,754,078
1908	17,453	7,004,748	401	840,570	3,253,141	4,635,287	1.42	47,696,579
1907	16,851	8,237,044	489	988,445	3,289,552	3,891,863	1.18	58,806,050
1906	.....	.....	.....	.....	3,069,917	4,684,625	1.53	42,630,087
Average (5 years) 1906–1910	20,249	8,370,484	413	1,004,458	3,209,015	4,517,915	1.41	50,658,780
Average (29 years) 1882–1910	.....	.....	.....	.....	2,604,627	3,811,172	1.46	35,410,138

The average for Sugar Beets is only for four years, 1907-1910. No data previous to 1907.

ALL FIELD CROPS—ORCHARD AND VINEYARD.

TABLE XV.—Showing by County Municipalities for 1910 the aggregate area, the market value and the value per acre of all field crops enumerated in Tables VII and XIV, also the area in orchard, small fruits and vineyard.

Counties and Districts.	All Field Crops.			Orchard.	Small fruits.	Vineyard.	Garden.
	Acres.	Value.	Per acre.	Acres.	Acres.	Acres.	Acres.
		$	$				
Algoma	34,033	725,656	21.32	313	80	.....	586
Brant	125,952	2,491,415	19.78	4,535	426	7	960
Bruce	353,799	5,595,305	15.81	9,269	438	55	1,447
Carleton	226,056	3,967,471	17.55	2,933	392	36	1,145
Dufferin	176,505	2,806,433	15.90	2,454	98	29	721
Dundas	105,714	1,949,085	18.44	2,455	140	22	675
Durham	197,669	3,434,031	17.37	10,301	359	97	959
Elgin	211,382	4,316,324	20.42	9,639	648	56	1,780
Essex	249,729	4,516,190	18.08	8,587	883	654	2,357
Frontenac	165,474	2,892,729	17.48	3,080	161	22	1,343
Glengarry	131,258	2,202,518	16.78	1,621	119	24	627
Grenville	107,322	1,989,825	18.54	1,829	71	18	626
Grey	429,486	6,929,253	16.13	14,571	347	134	1,692
Haldimand	164,780	2,524,403	15.32	5,717	362	74	1,022
Haliburton	27,569	470,844	17.08	280	14	.....	288
Halton	112,068	2,146,201	19.15	7,754	2,424	372	817
Hastings	253,931	4,545,356	17.90	9,196	297	33	1,727
Huron	387,077	6,521,526	16.85	12,779	424	67	1,467
Kent	342,566	7,418,817	21.66	11,553	1,329	135	2,328
Lambton	292,161	5,020,424	17.18	11,925	1,100	92	1,959
Lanark	154,818	2,635,976	17.03	1,950	78	20	808
Leeds	149,450	2,744,106	18.36	2,518	149	43	1,017
Lennox & Addington	166,397	2,420,941	14.55	5,550	417	7	1,266
Lincoln	103,403	2,080,609	20.12	13,743	2,020	4,976	1,001
Manitoulin	35,346	592,645	16.77	420	14	6	293
Middlesex	351,301	6,735,817	19.17	14,352	1,136	103	2,869
Muskoka	47,836	928,091	19.40	437	62	4	695
Nipissing	36,276	952,428	26.25	64	22	12	734
Norfolk	185,945	3,184,723	17.12	9,449	917	145	1,534
Northumberland	219,024	3,721,303	16.99	18,874	824	56	1,460
Ontario	259,325	4,622,886	17.83	7,765	365	21	1,245
Oxford	250,409	5,193,249	20.74	9,187	754	53	1,706
Parry Sound	57,972	1,079,418	18.62	168	14	.....	635
Peel	175,370	3,053,754	17.41	5,515	892	157	836
Perth	289,722	5,559,795	19.19	6,341	264	84	1,151
Peterborough	165,602	2,727,436	16.47	3,164	226	57	1,169
Prescott	147,331	2,328,386	15.80	1,205	125	30	1,157
Prince Edward	126,777	2,087,580	16.47	12,029	806	50	866
Rainy River	21,383	469,552	21.96	19	26	.....	364
Renfrew	225,075	3,514,563	15.62	1,290	132	2	1,608
Russell	88,509	1,453,277	16.42	595	82	37	450
Simcoe	455,805	8,212,608	18.02	10,120	679	89	2,233
Stormont	90,587	1,730,830	19.11	1,734	121	31	536
Sudbury	31,919	774,782	24.27	9	19	.....	257
Thunder Bay	10,039	239,384	23.85	5	9	.....	102
Victoria	189,075	2,793,231	14.77	2,834	115	22	848
Waterloo	179,070	3,580,629	19.99	4,672	278	19	689
Welland	125,797	2,406,474	19.13	7,099	983	1,247	1,174
Wellington	321,825	5,736,447	17.82	6,307	320	84	1,147
Wentworth	140,426	2,993,788	21.32	10,511	1,932	2,087	1,700
York	331,403	6,909,406	20.85	9,630	491	21	1,906
The Province:							
1910	9,227,748	165,927,920	17.98	298,347	24,384	11,390	57,982
1909	9,103,793	159,141,381	17.48	300,364	24,614	11,420	57,123
1908	9,165,634	155,632,389	16.98	326,550	.....	11,705	.....
1907	9,307,515	168,543,378	18.11	*326,290	.....	.....	.....
1906	8,962,925	144,570,075	16.13	352,306	.....	12,785	.....
Average (5 years):							
1906-1910	9,153,523	158,763,029	17.34	.....	.....	.....	.....
Average (29 years)							
1882-1910	8,305,946	123,336,481	14.85	.....	.....	.....	.....

*Including Vineyard and Small Fruits.

NOTE.—Orchard, Small Fruits, Vineyard, Garden and Mixed Grains not included in All Field Crops.

SUMMER FALLOW, PASTURE AND MIXED GRAINS.

TABLE XVI.—Showing by County Municipalities of Ontario the area of summer fallow, the area of pasture, the area, produce and market value of mixed grains for the year 1910, together with the totals for the Province for the past four years and the average for the four years, 1907-1910.

Counties and Districts.	Summer fallow. Acres.	Pasture. Acres.	Mixed Grains.			
			Acres.	Bushels.	Per acre.	Value.
						$
Algoma	422	5,267	943	32,345	34.3	18,275
Brant	5,622	24,923	6,236	228,238	36.6	112,521
Bruce	13,292	135,447	16,812	680,886	40.5	358,146
Carleton	1,690	88,810	13,574	500,881	36.9	203,358
Dufferin	4,994	47,590	8,870	339,721	38.3	148,798
Dundas	367	44,520	11,567	462,680	40.0	187,385
Durham	4,576	56,077	17,970	666,687	37.1	350,677
Elgin	5,804	83,770	10,813	421,707	39.0	212,540
Essex	2,158	45,489	6,297	202,134	32.1	95,812
Frontenac	1,681	92,450	7,944	252,619	31.8	140,709
Glengarry	462	46,771	4,766	174,912	36.7	93,753
Grenville	797	53,499	5,549	219,186	39.5	106,305
Grey	10,536	162,465	25,442	959,163	37.7	472,867
Haldimand	12,013	34,699	6,079	196,352	32.3	95,034
Haliburton	84	11,689	660	21,120	32.0	11,089
Halton	4,976	26,178	9,265	318,716	34.4	185,811
Hastings	2,530	125,918	12,881	389,006	30.2	211,619
Huron	10,876	181,046	21,578	858,804	39.8	429,402
Kent	3,432	78,790	7,286	268,853	36.9	140,072
Lambton	6,048	120,062	12,259	418,032	34.1	206,508
Lanark	1,138	115,454	11,490	380,319	33.1	200,048
Leeds	1,004	89,384	8,145	276,116	33.9	147,722
Lennox and Addington	2,403	70,910	6,348	189,170	29.8	114,637
Lincoln	5,493	20,694	2,528	86,458	34.2	45,390
Manitoulin	360	7,355	2,066	69,831	33.8	43,295
Middlesex	9,905	229,768	17,824	677,312	38.0	343,397
Muskoka	453	14,307	1,434	42,016	29.3	22,521
Nipissing	1,444	7,613	1,712	68,480	40.0	44,101
Norfolk	11,088	41,247	5,468	202,863	37.1	103,460
Northumberland	5,195	70,272	13,531	430,286	31.8	240,100
Ontario	4,096	60,676	21,454	793,798	37.0	366,735
Oxford	5,223	88,480	17,632	744,070	42.2	348,225
Parry Sound	582	15,679	1,328	42,496	32.0	25,498
Peel	7,523	53,498	6,600	252,120	38.2	144,465
Perth	10,719	101,940	20,212	863,052	42.7	419,443
Peterborough	5,350	62,456	4,595	153,014	33.3	83,852
Prescott	1,056	46,647	3,722	121,337	32.6	64,673
Prince Edward	1,916	42,174	4,275	102,600	24.0	57,866
Rainy River	576	3,731	398	14,726	37.0	10,014
Renfrew	2,733	86,750	7,921	241,591	30.5	118,621
Russell	475	29,147	3,577	143,438	40.1	61,105
Simcoe	33,044	104,271	18,296	653,167	35.7	339,647
Stormont	849	38,216	6,212	223,011	35.9	100,132
Sudbury	536	5,579	1,257	41,104	32.7	24,662
Thunder Bay	267	1,021	201	6,633	33.0	3,980
Victoria	3,182	59,239	11,464	353,091	30.8	192,788
Waterloo	8,239	29,627	21,544	734,650	34.1	353,367
Welland	9,312	29,841	3,586	120,848	33.7	64,049
Wellington	5,678	84,851	39,590	1,631,108	41.2	779,670
Wentworth	6,074	30,274	8,015	307,776	38.4	166,507
York	15,765	53,151	18,720	683,280	36.5	377,171
The Province:						
1910	254,038	3,159,712	497,936	18,261,803	36.7	9,187,822
1909	231,707	3,180,780	474,530	16,199,434	34.1	8,825,196
1908	.....	3,326,169	456,049	15,354,350	33.7	8,444,893
1907	.....	*	443,100	14,202,511	32.1	7,811,381
1906	.....	3,349,101	.....	.....	.....	.....
Average (4 years 1907-1910)	.....	.....	467,904	16,004,525	34.2	8,567,323

*Statistics for pasture not taken in 1907.

RATIOS OF AREAS UNDER CROP.

TABLE XVII.--Showing by County Municipalities of Ontario the number of acres under the various crops in 1910 per 1,000 acres of cleared land; together with the average for the Province for the past five years, 1906-1910, and the average of the twenty-nine years, 1882-1910.

Counties and Districts.	Fall Wheat.	Spring Wheat.	Barley.	Oats.	Peas.	Beans.	Rye.	Buckwheat.	Corn.	Potatoes.	*Other roots.	Hay and Clover.	Mixed Grains.
Algoma	6.5	19.9	43.1	199.7	70.0	.4	4.3	3.1	5.5	28.4	14.2	388.8	21.7
Brant	142.2	....	56.9	162.0	14.6	1.8	20.6	12.6	62.9	17.0	24.5	193.3	35.1
Bruce	64.3	4.9	37.9	182.9	66.1	.4	2.4	5.6	16.9	7.7	16.2	220.8	29.8
Carleton	.....	12.1	26.2	262.0	7.9	1.1	5.2	18.0	42.0	17.6	9.8	239.9	38.5
Dufferin	17.9	10.8	74.1	248.9	32.8	....	13.5	18.7	5.9	13.1	18.6	214.0	33.2
Dundas	1.4	1.3	26.4	207.4	3.2	1.2	2.2	12.5	73.4	11.1	2.8	267.7	66.8
Durham	23.0	19.5	54.3	192.4	77.6	1.4	21.3	31.7	22.8	11.4	25.1	187.8	60.8
Elgin	84.8	.4	21.3	132.7	9.8	23.3	7.1	9.8	96.7	10.0	3.8	200.7	30.7
Essex	63.0	2.8	23.9	214.3	5.6	.7	3.3	5.3	246.9	11.0	5.3	176.4	19.1
Frontenac	2.4	6.6	20.0	168.0	7.6	1.6	9.3	13.1	33.9	14.7	3.4	302.1	28.0
Glengarry	.5	13.0	34.1	234.5	5.6	.4	.5	10.3	34.2	12.7	5.6	313.1	24.1
Grenville	.3	3.9	17.8	192.9	2.9	.9	5.0	28.5	60.7	15.3	3.7	254.6	30.3
Grey	37.6	6.5	46.3	206.6	49.1	.5	1.0	6.9	14.8	9.0	17.0	221.9	36.6
Haldimand	125.6	1.7	33.8	159.9	25.4	1.1	1.7	6.9	27.4	8.1	2.6	298.7	25.6
Haliburton	.1	7.0	14.5	198.8	25.8	.3	1.1	13.3	10.2	15.6	7.4	306.0	14.4
Halton	107.8	3.9	44.9	172.9	35.2	.2	.5	2.5	29.3	11.2	17.5	222.2	53.6
Hastings	6.6	6.8	38.0	193.9	21.5	.8	10.7	19.2	43.1	14.6	4.9	231.5	30.0
Huron	58.6	3.7	47.2	193.2	38.7	1.2	.5	6.3	21.1	6.9	17.6	196.4	33.0
Kent	128.7	1.4	43.8	149.4	6.7	57.7	1.2	1.9	151.9	8.8	23.3	175.6	16.0
Lambton	67.8	1.1	44.4	184.8	7.0	2.7	.5	1.2	75.4	7.8	10.0	202.8	25.4
Lanark	2.3	16.7	20.5	148.2	12.3	1.0	4.1	18.3	36.7	7.8	6.4	202.1	35.4
Leeds	3.6	3.8	18.5	184.4	3.4	.8	5.0	14.9	62.2	11.1	3.8	241.8	30.2
Lennox & Add	6.0	10.5	41.4	176.5	16.7	1.0	9.1	28.0	31.6	13.1	2.3	306.0	24.5
Lincoln	80.0	.7	16.0	149.5	17.7	1.7	3.7	2.4	61.6	12.7	4.5	286.9	15.6
Manitoulin	11.6	24.0	39.5	150.9	103.0	.1	12.7	3.2	12.8	19.9	11.3	375.2	44.7
Middlesex	76.4	.2	30.5	161.6	12.3	2.6	1.4	1.4	53.1	10.1	7.8	174.8	27.0
Muskoka	.3	7.0	12.4	19.7	31.8	.1	2.8	4.4	10.4	22.8	10.8	392.3	21.4
Nipissing	4.1	15.1	19.2	185.3	43.5	.5	.9	2.7	3.5	28.4	11.4	348.0	31.3
Norfolk	115.5	.6	19.7	137.5	10.1	5.5	40.6	42.2	88.4	14.3	6.1	200.7	20.0
Northumberland	28.0	8.1	39.1	177.0	56.2	2.2	30.6	42.7	32.2	12.7	16.0	190.5	39.2
Ontario	37.8	20.2	70.7	204.8	45.8	1.0	19.0	29.3	29.3	11.7	41.0	188.0	57.3
Oxford	74.2	1.7	37.8	193.7	14.1	.4	3.0	6.0	82.7	8.1	23.0	188.1	44.6
Parry Sound	.4	6.6	13.3	209.4	40.2	.1	1.5	1.2	6.0	19.9	13.8	372.0	15.7
Peel	57.2	15.8	94.6	202.7	22.9	.3	7.9	12.0	24.1	12.7	12.5	203.1	25.1
Perth	77.1	2.5	63.2	203.9	27.3	....	.4	2.9	29.2	7.0	21.9	214.3	45.3
Peterborough	38.7	7.0	31.8	227.6	67.1	.6	8.7	23.6	18.8	11.3	14.3	208.5	18.3
Prescott	.2	17.6	26.5	250.9	5.2	1.2	.9	8.1	26.8	13.1	3.8	343.5	17.6
Prince Edward	17.2	5.7	60.0	135.7	36.0	4.6	28.9	32.3	69.4	11.7	1.8	242.8	21.8
Rainy River	10.9	24.9	37.1	177.5	3.1	.2	.....	.....	1.2	25.8	6.9	539.3	15.4
Renfrew	1.4	80.6	14.8	188.4	47.0	1.0	13.1	8.9	17.5	10.4	3.7	243.8	22.2
Russell	.3	10.5	30.8	228.9	6.9	1.2	.5	10.5	45.4	10.3	8.8	317.5	27.1
Simcoe	100.2	10.7	89.4	208.8	42.9	.6	6.7	17.8	14.4	13.7	18.2	163.3	27.6
Stormont	.2	3.6	19.7	208.3	1.2	.8	1.1	23.9	62.7	13.2	2.4	275.3	42.0
Sudbury	1.6	14.6	21.3	197.7	44.4	.2	2.2	2.7	2.1	26.0	11.0	478.9	30.6
Thunder Bay	.8	23.7	36.3	249.3	8.2	....	2.2	.4	.....	83.8	13.9	446.6	17.3
Victoria	28.3	23.3	59.1	228.7	43.6	.3	5.5	30.2	16.6	9.1	23.5	195.1	40.2
Waterloo	127.2	.7	57.0	211.5	27.1	.5	4.7	7.6	34.6	12.9	34.6	191.0	85.3
Welland	102.0	1.0	12.8	146.7	10.8	5.5	4.4	14.4	56.6	17.6	2.4	306.4	19.4
Wellington	23.9	8.7	58.5	223.8	32.4	....	.9	20.3	10.3	9.4	32.5	228.0	79.8
Wentworth	104.6	1.4	48.1	174.0	13.2	.7	4.1	8.4	40.0	21.9	20.5	218.3	37.4
York	81.0	17.4	90.4	225.7	42.4	.5	4.1	15.7	28.4	18.2	28.7	203.[illegible]	42.7
The Province:													
1910	51.9	9.0	43.7	192.5	28.2	3.5	6.6	13.6	45.2	11.8	14.5	223.7	34.8
1909	46.5	9.5	48.8	189.0	26.7	3.2	6.6	12.4	42.9	11.9	14.5	226.[illegible]	33.3
1908	48.1	10.1	51.9	196.3	28.1	3.3	6.2	9.9	37.7	11.8	14.9	230.4	32.3
1907	47.9	10.2	54.3	207.7	24.1	3.4	4.8	8.0	38.2	12.6	15.1	233.0	31.4
1906	55.8	12.2	53.6	192.6	29.1	3.6	5.7	7.5	33.3	9.7	14.7	217.[illegible]	.....
Average (5 yrs) 1906-1910	50.0	10.2	50.4	195.6	27.2	3.4	6.0	10.3	39.5	11.5	15.2	226.2	33.0
Average 29 yrs 1882-1910	67.9	30.0	52.0	175.7	49.4	3.4	9.2	8.6	31.5	12.6	14.2	207.7	.....

MARKET PRICES.

TABLE XVIII.—The following table shows by counties the average prices of agricultural products for 1910; together with the average price for the past five years, and the average for the twenty-nine years, 1882-1910.

Counties and Districts.	Fall Wheat, per bush.	Spring Wheat, per bush.	Barley, per bush.	Oats, per bush.	Peas, per bush.	Beans, per bush.	Rye, per bush.	Buckwheat, per bush.	Corn (in ear) per bush.	Hay, per ton.	Potatoes, per bush.
	cts.	cts.	cts.	cts.	cts.	$ c.	cts.	cts.	cts.	$ c.	cts.
Algoma	105.1	99.8	63.9	42.6	86.9	2 00	70.0	68.0	45.0	11 49	53.4
Brant	87.6	.....	52.2	34.0	73.6	1 50	64.7	49.6	37.5	10 91	52.1
Bruce	84.0	80.3	49.9	32.9	77.3	1 90	64.5	51.0	40.4	8 50	41.4
Carleton	99.9	94.7	51.6	34.3	91.4	1 91	64.5	52.9	39.4	9 38	59.1
Dufferin	85.7	83.2	49.1	31.0	74.7	1 88	60.4	46.6	33.3	9 27	45.7
Dundas	95.4	95.9	54.4	37.0	82.9	1 73	72.1	53.6	40.7	8 16	50.6
Durham	91.1	86.7	55.7	35.0	92.7	1 57	63.2	50.3	38.8	11 31	48.3
Elgin	87.1	90.0	55.2	37.3	76.5	1 47	65.4	54.1	40.6	9 71	48.9
Essex	85.6	85.1	50.9	31.9	85.0	1 65	69.5	52.6	33.2	9 26	53.1
Frontenac	93.4	92.8	60.4	39.2	86.0	1 62	67.4	54.5	45.5	9 47	51.8
Glengarry	91.5	92.9	55.3	34.3	90.3	1 72	68.0	54.5	44.8	7 77	55.6
Grenville	93.4	93.3	54.9	38.6	86.3	1 80	72.1	50.8	44.7	9 40	52.0
Grey	84.6	82.5	49.0	32.3	77.8	1 50	61.0	49.5	40.8	10 26	42.0
Haldimand	85.9	81.7	50.4	34.2	76.7	1 88	63.3	48.4	39.5	9 16	53.9
Haliburton	99.5	90.5	59.2	41.0	89.1	1 83	63.3	57.2	47.0	10 92	45.5
Halton	87.3	82.4	58.0	36.8	77.3	1 80	66.2	52.1	39.9	12 89	52.5
Hastings	89.4	90.4	54.8	39.0	82.8	1 65	62.0	52.1	42.1	9 82	47.9
Huron	84.1	81.6	49.5	33.0	75.8	1 52	61.0	50.3	36.7	8 93	41.5
Kent	85.6	87.5	51.3	33.6	86.8	1 54	61.0	47.8	34.3	9 09	51.0
Lambton	84.9	88.8	49.7	31.8	77.0	1 56	63.0	51.3	37.0	8 26	45.8
Lanark	94.6	95.8	55.2	37.1	76.7	1 60	60.3	50.4	45.2	10 47	50.4
Leeds	97.5	94.4	58.3	38.8	81.6	1 76	71.4	56.8	43.5	9 35	58.2
Lennox and Add	87.7	89.9	54.7	36.1	82.3	1 66	65.5	47.9	40.7	8 23	48.7
Lincoln	88.0	86.0	51.9	36.9	79.7	1 78	65.5	49.4	43.4	11 18	56.5
Manitoulin	92.7	92.9	55.7	41.8	85.4	1 90	65.5	57.5	45.0	8 57	55.9
Middlesex	87.8	89.6	49.5	34.6	76.8	1 52	66.8	52.0	38.5	11 14	43.1
Muskoka	95.0	90.4	59.2	41.8	86.1	1 77	64.2	58.7	42.0	10 67	48.6
Nipissing	113.9	107.3	67.7	47.5	94.5	1 80	63.8	60.0	40.0	12 56	52.4
Norfolk	88.8	82.5	51.7	36.4	72.8	1 49	63.6	48.3	38.5	8 98	44.9
Northumberland	90.7	87.7	53.7	38.2	92.0	1 56	62.6	49.3	40.7	11 25	46.8
Ontario	86.1	82.1	51.2	33.0	80.3	1 56	63.2	48.6	36.4	11 03	46.1
Oxford	88.3	85.1	50.3	35.7	77.7	1 49	61.9	50.9	43.0	11 02	47.4
Parry Sound	98.0	97.4	64.7	42.7	90.5	1 80	70.1	63.1	41.9	10 27	48.6
Peel	86.7	80.4	53.0	34.5	77.0	1 60	62.7	48.9	37.4	12 46	48.8
Perth	85.7	81.7	48.1	32.7	74.6	1 75	68.0	53.6	40.9	9 07	45.7
Peterborough	89.4	84.8	50.2	35.8	93.5	1 80	58.7	47.7	50.0	10.77	50.8
Prescott	87.0	99.1	53.9	34.8	93.6	1 79	60.0	57.0	48.4	7 86	56.0
Prince Edward	91.3	91.7	55.3	39.0	83.6	1 46	62.8	48.6	43.6	9 00	50.2
Rainy River	105.6	102.9	67.5	48.6	96.0	2 00	.....	.....	45.0	18 25	87.3
Renfrew	98.1	97.2	48.8	36.0	81.9	1 64	58.8	49.1	43.3	8 69	51.3
Russell	90.0	99.0	52.6	33.3	92.7	1 57	60.0	51.1	42.3	7 64	60.5
Simcoe	85.2	86.6	51.0	33.3	79.4	1 60	61.1	47.8	41.2	10 78	41.6
Stormont	91.2	97.9	55.0	36.6	85.1	1 70	64.9	51.3	41.6	8 50	54.2
Sudbury	110.0	107.9	74.8	48.5	97.7	2 00	70.0	60.0	40.0	11 33	54.2
Thunder Bay	95.0	94.0	55.0	45.0	98.0	.....	70.0	70.0	.....	16 57	58.6
Victoria	85.2	80.0	49.5	32.8	80.3	1 58	60.3	47.1	36.7	9 93	43.1
Waterloo	87.4	87.4	54.1	36.3	78.2	1 88	66.4	53.8	37.9	12 36	47.7
Welland	87.6	90.6	54.9	39.0	79.0	1 98	61.2	52.4	41.8	9 74	59.2
Wellington	87.0	82.8	50.5	34.0	77.0	1 67	61.5	48.2	38.9	10 35	45.4
Wentworth	89.5	84.9	54.8	36.9	77.9	1 73	65.3	53.9	41.8	13 23	57.2
York	87.2	81.2	57.6	37.4	76.3	1 91	62.2	47.9	45.0	14 46	50.5
The Province:											
1910	86.6	89.6	52.0	35.0	80.7	1 55	63.2	50.0	37.3	9 91	49.2
1909	102.3	100.6	54.8	39.5	84.6	1 61	67.4	53.4	42.9	12 81	36.5
1908	89.2	90.8	52.4	40.3	82.7	1 48	69.7	54.2	40.0	10 25	47.9
1907	92.7	86.4	59.4	48.8	78.0	1 52	69.4	57.4	28.4	15 11	58.3
1906	70.7	68.9	45.0	34.0	70.6	1 39	60.9	49.5	37.6	9 10	53.8
Average (5 years) 1906-1910	87.6	85.8	52.4	39.1	79.3	1 51	66.0	52.8	37.3	11 21	48.4
Average (29 years) 1882-1910	80.0	81.1	48.1	33.2	60.5	1 16	53.6	44.2	*31.2	9 29	42.1

*Average for nineteen years, 1892-1910.

HORSES AND

TABLE XIX.—Showing by County Municipalities the number and value of Horses and Cattle June 30th, 1910, together with the totals

Counties and; Districts.	Horses all ages.				Cattle	
	Number on hand.	Value.	Horses sold.		Milch cows on hand.	
			Number.	Value.	Number	Value.
		$		$		$
Algoma	2,625	354,375	269	29,590	3,466	139,680
Brant	10,087	1,250,788	883	105,960	13,349	583,218
Bruce	26,395	3,536,930	4,690	694,120	27,065	1,086,660
Carleton	16,240	2,289,840	1,739	260,850	35,635	1,433,240
Dufferin	12,651	1,606,677	1,815	241,395	12,847	518,248
Dundas	8,366	1,037,384	1,037	128,588	26,338	1,088,813
Durham	14,727	1,988,145	1,775	248,500	16,875	720,563
Elgin	18,397	2,318,022	2,473	326,436	28,920	1,327,428
Essex	21,669	2,643,618	3,124	424,864	18,210	694,165
Frontenac	12,166	1,423,422	1,310	157,200	29,837	1,077,712
Glengarry	9,975	1,187,025	1,281	166,530	28,478	1,064,508
Grenville	7,238	832,370	615	67,650	19,590	717,386
Grey	32,580	4,235,400	4,833	652,455	36,248	1,464,419
Haldimand	12,087	1,522,962	1,597	218,789	14,177	591,323
Haliburton	1,802	216,240	287	31,570	3,276	101,687
Halton	8,919	1,212,984	1,028	137,752	11,273	511,343
Hastings	18,436	2,101,704	2,046	229,152	42,922	1,463,640
Huron	33,164	4,642,960	6,742	1,024,784	31,885	1,446,622
Kent	28,482	3,560,250	3,233	417,057	22,790	967,436
Lambton	24,332	3,090,164	3,809	525,642	27,600	1,195,632
Lanark	11,620	1,475,740	1,531	200,561	24,720	912,662
Leeds	10,386	1,142,460	1,264	137,776	31,086	1,182,201
Lennox & Addington	11,845	1,314,795	1,295	150,220	23,171	838,095
Lincoln	9,453	1,172,172	879	108,996	9,472	381,248
Manitoulin	2,729	324,751	304	36,176	3,377	129,001
Middlesex	35,045	4,520,805	5,326	761,618	46,926	2,121,524
Muskoka	3,527	468,587	422	53,172	5,670	202,306
Nipissing	2,419	336,241	267	31,506	3,616	136,251
Norfolk	14,362	1,694,716	1,565	194,060	19,181	794,477
Northumberland	17,552	2,141,344	2,276	275,396	26,168	1,023,954
Ontario	20,002	2,720,272	3,350	479,050	22,405	1,010,241
Oxford	22,127	2,832,256	2,774	377,264	46,395	2,168,966
Parry Sound	3,929	510,770	357	41,055	5,710	202,819
Peel	13,745	1,896,810	2,236	337,636	17,629	802,472
Perth	25,057	3,382,695	3,632	555,696	35,992	1,592,646
Peterborough	11,278	1,421,028	1,347	173,763	19,277	736,767
Prescott	8,794	1,020,104	816	104,448	24,192	802,691
Prince Edward	9,869	1,125,066	1,630	198,860	15,585	633,842
Rainy River	1,514	231,642	206	33,990	2,069	82,036
Renfrew	13,303	1,755,996	1,863	253,368	23,433	732,281
Russell	6,066	794,646	1,023	135,036	16,536	586,697
Simcoe	35,503	4,792,905	4,452	605,472	35,123	1,380,334
Stormont	7,616	830,144	1,104	126,960	22,784	858,273
Sudbury	1,770	249,570	300	39,600	2,412	92,018
Thunder Bay	585	93,600	47	6,392	852	42,600
Victoria	14,807	1,880,489	1,919	262,903	18,887	723,750
Waterloo	14,400	1,843,200	1,910	255,940	16,172	729,357
Welland	9,779	1,202,817	957	122,496	10,450	415,388
Wellington	26,023	3,356,967	3,592	513,656	26,035	1,224,426
Wentworth	13,112	1,639,000	1,030	133,900	15,246	665,335
York	25,829	3,534,583	3,640	549,640	31,444	1,509,941
The Province:						
1910	724,384	92,757,431	97,900	13,345,490	1,052,796	42,908,322
1909	728,308	87,682,689	76,461	9,825,476	1,075,496	41,077,721
1908	726,471	85,847,391	71,214	8,878,225	1,113,374	41,083,586
1907	725,666	85,041,144	*	*	1,152,071	41,970,012
1906	688,147	79,814,953	64,761	7,851,480	1,129,047	40,634,401

*Not taken in 1907

CATTLE.

on hand July 1, 1910, and the number and value of those sold or slaughtered in the year ending for the Province for the past five years.

Cattle.						
Other cattle on hand.		Total on hand.		Sold or slaughtered.		Counties and Districts.
Number.	Value.	Number.	Value.	Number.	Value.	
	$		$		$	
4,889	87,024	8,355	226,704	2,772	64,809	Algoma.
16,991	380,938	30,340	964,156	11,135	390,282	Brant.
73,051	1,833,580	100,116	2,920,240	38,322	1,659,343	Bruce.
38,607	818,468	74,242	2,251,708	18,048	611,286	Carleton.
31,903	662,625	44,750	1,180,873	15,116	570,327	Dufferin.
13,536	251,499	39,874	1,340,312	7,531	203,789	Dundas.
31,554	651,590	48,429	1,372,153	14,383	570,574	Durham.
36,527	907,696	65,447	2,235,124	20,801	792,518	Elgin.
27,720	556,895	45,930	1,251,060	14,829	449,467	Essex.
20,135	335,248	49,972	1,412,960	10,545	259,512	Frontenac.
16,233	276,610	44,711	1,341,118	7,980	205,645	Glengarry.
11,712	195,356	31,302	912,742	5,779	167,707	Grenville.
93,404	2,171,643	129,652	3,636,062	47,221	1,955,422	Grey.
19,764	426,902	33,941	1,018,225	11,872	390,114	Haldimand.
5,940	85,180	9,216	186,867	3,084	64,949	Haliburton.
19,028	441,069	30,301	952,412	9,860	431,079	Halton.
34,650	565,142	77,572	2,028,782	17,699	391,502	Hastings.
87,828	2,474,115	119,713	3,920,737	50,998	2,464,223	Huron.
48,582	1,219,408	71,372	2,186,844	25,930	1,054,055	Kent.
67,756	1,894,458	95,356	3,090,090	35,707	1,447,205	Lambton.
32,260	550,356	56,980	1,463,018	14,880	459,643	Lanark.
22,554	385,448	53,640	1,567,649	9,585	254,578	Leeds.
19,707	323,589	42,878	1,161,684	8,969	253,285	Lennox & Addington.
9,073	181,188	18,545	562,436	6,821	203,061	Lincoln.
6,998	115,887	10,375	244,888	3,650	102,091	Manitoulin.
91,698	2,593,219	138,624	4,714,743	55,560	2,353,522	Middlesex.
8,456	131,914	14,126	334,220	4,504	105,349	Muskoka.
4,715	71,904	8,331	208,155	2,038	54,720	Nipissing.
17,731	321,818	36,912	1,116,295	11,482	328,615	Norfolk.
27,500	520,300	53,668	1,544,254	13,265	419,174	Northumberland.
48,971	1,156,205	71,376	2,166,446	23,056	1,007,778	Ontario.
39,537	1,089,244	85,932	3,258,210	27,664	1,103,794	Oxford.
9,796	154,679	15,506	357,498	5,172	115,077	Parry Sound.
28,063	771,733	45,692	1,574,205	22,042	940,091	Peel.
58,064	1,319,214	94,056	2,911,860	27,280	1,107,568	Perth.
25,230	436,227	44,507	1,172,994	11,781	348,718	Peterborough.
15,667	229,052	39,859	1,031,743	6,605	158,850	Prescott.
9,467	172,773	25,052	806,615	4,830	114,809	Prince Edward.
3,447	75,248	5,516	157,284	1,412	38,802	Rainy River.
38,435	724,884	61,868	1,457,165	18,658	482,309	Renfrew.
14,124	220,334	30,660	807,031	6,369	153,557	Russell.
77,379	1,501,153	112,502	2,881,487	33,512	1,167,893	Simcoe.
10,944	169,741	33,728	1,028,014	5,664	136,163	Stormont.
3,964	68,022	6,376	160,040	2,409	63,598	Sudbury.
950	19,732	1,802	62,332	501	15,145	Thunder Bay.
40,501	829,865	59,388	1,553,615	20,558	677,181	Victoria.
25,422	550,386	41,594	1,279,743	20,250	921,983	Waterloo.
13,617	282,008	24,067	697,396	8,829	264,605	Welland.
62,067	1,548,572	88,102	2,772,998	37,355	1,794,161	Wellington.
17,754	430,357	33,000	1,095,692	11,114	383,878	Wentworth.
30,431	783,903	61,875	2,293,844	21,812	921,557	York.
						The Province:
1,514,332	33,964,401	2,567,128	76,872,723	817,239	30,595,363	1910.
1,593,088	34,169,476	2,668,584	75,247,197	800,228	28,513,187	1909.
1,711,485	36,171,681	2,824,859	77,255,267	798,062	27,733,956	1908.
1,774,165	37,515,768	2,926,236	79,485,780	*	*	1907.
1,834,571	39,668,875	2,963,618	80,303,276	741,476	27,205,105	1906.

* Not taken in 1907.

SHEEP, SWINE

TABLE XX.—Showing by County Municipalities the numbers and values of Sheep, Swine and year ending June 30, 1910, together with the

Counties and Districts.	Sheep and Lambs.				Swine.	
	Number on hand.	Value.	Sold or slaughtered.		Number on hand.	Value.
			Number.	Value.		
		$		$		$
Algoma	8,471	39,136	3,619	15,924	2,892	24,582
Brant	8,987	58,595	6,070	31,807	21,538	191,042
Bruce	56,098	339,393	28,814	163,375	44,022	385,193
Carleton	22,656	125,514	10,138	53,529	33,305	299,412
Dufferin	27,816	151,041	11,675	60,710	28,316	230,775
Dundas	3,715	21,176	1,584	8,617	22,896	192,555
Durham	26,433	151,461	11,359	63,951	29,668	260,188
Elgin	26,006	160,717	13,683	76,077	55,317	426,494
Essex	23,554	119,183	8,984	43,483	106,248	792,610
Frontenac	17,190	85,950	8,234	41,417	20,408	175,713
Glengarry	6,951	41,219	3,147	16,239	15,267	155,723
Grenville	7,814	42,743	3,802	19,694	14,319	126,580
Grey	85,044	477,097	40,763	211,968	64,467	556,350
Haldimand	20,549	128,020	11,784	65,637	20,274	176,992
Haliburton	9,430	39,889	3,680	14,610	2,076	19,369
Halton	16,740	126,722	8,572	53,146	17,207	152,454
Hastings	38,522	173,349	18,744	77,413	43,780	379,573
Huron	41,608	257,137	20,350	114,774	58,706	524,245
Kent	21,725	130,567	10,424	59,417	102,266	804,833
Lambton	32,602	208,327	16,166	91,176	50,814	426,329
Lanark	29,740	153,458	13,300	67,564	20,150	165,835
Leeds	14,238	70,905	6,408	31,015	24,012	214,907
Lennox and Addington	13,125	75,731	6,775	30,217	17,048	146,101
Lincoln	9,965	65,470	4,722	26,774	11,947	106,567
Manitoulin	12,139	57,539	4,745	20,119	5,292	38,049
Middlesex	37,266	254,527	17,699	107,256	59,305	519,512
Muskoka	11,224	54,324	6,030	28,100	3,300	26,895
Nipissing	4,347	18,996	1,830	7,869	3,948	33,874
Norfolk	18,177	106,335	9,040	50,443	34,339	279,519
Northumberland	16,539	94,934	7,920	37,699	32,842	284,083
Ontario	36,518	241,384	16,813	97,179	46,270	403,012
Oxford	10,398	64,988	4,365	25,841	57,579	522,817
Parry Sound	13,685	63,772	5,922	27,360	4,487	38,588
Peel	11,202	71,469	8,209	47,448	25,962	228,466
Perth	20,117	120,300	9,385	55,090	60,681	535,206
Peterborough	15,352	74,918	6,441	30,337	22,185	192,122
Prescott	10,944	56,471	3,667	16,098	15,552	137,791
Prince Edward	7,169	35,415	3,519	16,926	14,247	125,374
Rainy River	2,005	12,932	1,001	6,146	1,701	18,286
Renfrew	53,091	245,811	21,379	98,557	22,035	174,517
Russell	6,518	37,804	3,942	19,000	12,152	117,510
Simcoe	56,798	319,773	25,343	137,612	75,508	609,350
Stormont	4,210	22,397	2,160	9,720	16,208	142,468
Sudbury	3,425	16,372	1,282	5,525	2,529	21,092
Thunder Bay	175	963	44	242	618	5,562
Victoria	29,549	163,701	14,028	75,050	29,822	254,382
Waterloo	10,620	66,587	5,907	36,033	38,475	338,195
Welland	13,507	80,637	7,007	39,940	11,352	99,103
Wellington	50,035	341,739	26,896	159,762	59,149	500,992
Wentworth	16,217	103,789	11,246	67,476	21,120	190,080
York	24,895	156,341	14,292	87,610	57,441	494,567
The Province:						
1910	1,065,101	6,127,018	512,909	2,748,972	1,561,042	13,265,834
1909	1,130,667	6,262,493	533,441	2,767,635	1,551,187	11,144,135
1908	1,143,898	6,336,265	545,320	2,867,255	1,818,763	12,135,979
1907	1,106,083	5,928,325	*	*	2,049,666	14,174,502
1906	1,304,809	6,721,119	574,416	2,596,429	1,819,778	12,770,708

*Not taken in 1907

AND POULTRY.

Poultry on hand on July 1, 1910, and the number and value of those sold or slaughtered in the totals for the Province for the past five years.

Swine.		Poultry of all classes.				Counties and Districts.
Sold or slaughtered.		Number on hand.	Value.	Sold or slaughtered.		
Number.	Value.			Number.	Value.	
	$		$		$	
3,357	39,848	47,782	24,333	20,750	12,243	Algoma.
32,910	418,944	148,472	65,401	51,471	25,736	Brant.
60,298	763,976	403,794	170,786	123,863	61,932	Bruce.
29,144	367,797	332,796	176,198	139,570	73,972	Carleton.
27,243	354,704	166,689	74,270	49,532	25,757	Dufferin.
23,774	281,484	193,299	83,783	50,285	25,143	Dundas.
36,687	428,137	244,883	101,731	74,453	34,993	Durham.
64,572	807,796	352,525	142,769	118,693	58,160	Elgin.
105,065	1,297,553	522,723	200,855	197,099	92,637	Essex.
22,237	279,964	179,742	80,998	79,609	41,397	Frontenac.
17,000	188,530	149,462	73,517	55,041	28,071	Glengarry.
17,527	197,880	159,735	77,930	54,278	27,139	Grenville.
75,630	962,770	535,436	227,406	164,619	85,602	Grey.
27,240	326,335	183,522	82,432	68,194	34,097	Haldimand.
1,740	20,462	26,953	11,854	8,500	4,590	Haliburton.
25,371	322,212	133,241	64,975	61,544	32,618	Halton.
40,854	511,492	309,774	136,124	99,968	48,984	Hastings.
76,336	969,467	609,586	250,382	183,642	91,821	Huron.
104,166	1,366,658	602,162	228,772	166,469	79,905	Kent.
65,092	804,537	540,304	219,573	167,454	88,751	Lambton.
19,165	229,788	183,503	76,709	65,880	33,599	Lanark.
22,329	256,784	170,933	78,184	59,922	28,763	Leeds.
20,462	256,798	170,251	73,451	53,664	26,295	Lennox & Addington.
17,214	205,191	152,194	67,784	67,393	33,697	Lincoln.
5,011	51,914	34,947	14,296	14,576	6,996	Manitoulin.
76,694	918,794	695,622	309,081	214,458	117,952	Middlesex.
4,786	52,933	73,446	29,432	27,519	11,833	Muskoka.
3,382	42,444	56,504	25,852	22,862	11,431	Nipissing.
46,982	572,711	263,431	107,061	99,512	45,776	Norfolk.
40,180	497,428	295,201	124,443	70,721	37,482	Northumberland.
57,236	740,654	329,407	145,427	114,858	56,280	Ontario.
72,818	942,265	344,828	147,382	100,761	50,381	Oxford.
5,921	57,730	59,754	24,545	17,334	7,974	Parry Sound.
37,201	456,084	221,399	117,907	111,534	63,574	Peel.
80,157	1,017,994	437,920	184,642	111,700	55,850	Perth.
29,096	365,737	203,922	85,118	52,496	26,248	Peterborough.
11,462	148,204	139,295	61,805	53,945	26,973	Prescott.
17,887	222,335	143,030	58,500	45,692	20,561	Prince Edward.
1,919	25,945	34,223	14,928	9,996	5,098	Rainy River.
16,011	208,143	229,314	99,710	86,992	43,496	Renfrew.
12,192	147,767	101,144	49,650	43,843	22,360	Russell.
81,526	1,066,360	527,183	231,023	146,764	74,850	Simcoe.
19,118	226,548	137,732	58,285	43,776	21,888	Stormont.
2,290	29,587	32,113	15,586	13,455	6,728	Sudbury,
454	5,407	25,584	11,968	7,628	3,814	Thunder Bay.
33,680	421,674	253,275	104,598	82,557	41,279	Victoria.
52,158	644,673	217,194	81,817	59,844	28,127	Waterloo.
18,590	208,022	194,228	80,116	82,786	36,426	Welland.
79,585	1,034,605	360,298	151,606	115,231	59,920	Wellington.
30,502	390,121	179,819	87,688	83,494	45,922	Wentworth.
72,154	874,506	350,213	180,348	148,488	89,093	York.
						The Province:
1,844,405	23,029,692	12,460,787	5,393,031	4,164,715	2,114,214	1910.
1,986,432	21,407,549	12,086,580	4,411,386	4,177,583	1,951,076	1909.
2,129,944	21,600,459	12,285,613	4,439,854	4,108,750	1,895,753	1908.
*	*	13,428,076	4,854,381	*	*	1907.
2,222,758	22,501,028	10,254,824	3,697,338	3,473,708	1,374,246	1906.

*Not taken in 1907.

WOOL CLIP, POULTRY ON HAND AND LIVE STOCK SOLD.

TABLE XXI. Showing by County Municipalities the number of pounds of wool, the number of turkeys, geese, ducks and other fowls on hand June 30th, 1910; also the value of all live stock sold or killed in the year ending June 30, 1910, together with the totals for the Province for the past five years.

Counties and Districts.	Wool Clip.	Poultry on Hand.				Total value of Live Stock sold or killed.
		Turkeys.	Geese.	Ducks.	Other fowl.	
	lbs.	No.	No.	No.	No.	$
Algoma	29,751	5,300	743	750	40,989	162,414
Brant	34,509	1,235	2,652	4,376	140,209	972,729
Bruce	210,856	24,435	16,690	15,069	347,609	3,342,746
Carleton	74,438	23,424	15,690	12,594	281,088	1,367,434
Dufferin	103,721	10,127	11,114	7,527	137,921	1,252,893
Dundas	10,958	12,776	4,682	3,271	172,570	647,621
Durham	117,757	8,508	10,192	8,980	217,203	1,346,155
Elgin	99,021	25,160	6,586	7,612	313,167	2,060,987
Essex	95,432	18,975	12,056	20,134	471,558	2,308,004
Frontenac	53,208	15,996	2,538	4,030	157,178	779,490
Glengarry	29,505	12,932	3,156	2,103	131,271	605,015
Grenville	26,861	14,136	4,250	5,400	135,949	480,070
Grey	314,334	34,182	18,014	24,486	458,754	3,868,217
Haldimand	72,978	6,824	6,149	4,980	165,569	1,034,972
Haliburton	30,031	1,793	738	194	24,228	136,181
Halton	69,920	5,996	5,253	4,996	116,996	976,807
Hastings	120,967	13,013	8,170	5,200	283,391	1,258,543
Huron	160,672	35,387	17,554	25,412	531,233	4,665,069
Kent	97,466	21,473	10,105	17,174	553,410	2,977,092
Lambton	131,086	35,230	11,420	16,769	476,885	2,957,311
Lanark	96,820	8,072	5,516	2,175	167,740	991,155
Leeds	41,937	18,035	3,893	5,131	143,964	708,916
Lennox & Addington	44,094	9,358	3,992	3,987	152,914	716,815
Lincoln	40,375	3,887	1,837	5,423	141,047	577,719
Manitoulin	40,122	3,155	1,656	1,134	29,002	217,296
Middlesex	162,000	56,425	13,566	16,592	609,039	4,259,142
Muskoka	35,309	3,062	771	1,258	68,355	251,387
Nipissing	13,847	1,431	569	761	53,743	147,970
Norfolk	63,256	13,539	4,787	4,404	240,701	1,191,605
Northumberland	69,764	11,140	4,739	5,971	273,351	1,267,179
Ontario	172,859	7,897	13,504	11,569	296,437	2,380,941
Oxford	42,859	11,833	6,478	8,270	318,247	2,499,545
Parry Sound	46,089	2,324	1,292	880	55,258	249,196
Peel	46,094	14,888	8,387	10,607	187,517	1,844,833
Perth	67,216	14,323	15,718	19,627	388,252	2,792,198
Peterborough	54,470	12,674	5,860	4,887	180,501	944,803
Prescott	38,537	8,405	5,542	2,564	122,784	454,573
Prince Edward	21,497	6,393	1,750	4,614	130,273	573,491
Rainy River	8,814	944	1,005	347	31,927	109,981
Renfrew	146,774	10,025	7,870	4,269	207,150	1,085,873
Russell	26,512	4,447	2,762	1,698	92,237	477,720
Simcoe	245,775	28,489	17,999	15,575	465,120	3,052,187
Stormont	13,788	5,940	1,652	2,076	128,064	521,279
Sudbury	12,310	1,478	581	53	30,001	145,038
Thunder Bay	736	1,128	89	187	24,180	31,000
Victoria	116,682	11,246	10,003	7,442	224,584	1,478,087
Waterloo	41,733	2,355	4,797	4,886	205,156	1,886,756
Welland	45,666	3,825	2,390	7,195	180,818	671,489
Wellington	204,672	12,578	16,348	14,015	317,357	3,562,104
Wentworth	63,518	2,615	3,055	5,612	168,537	1,021,297
York	102,704	10,500	11,635	14,712	313,366	2,522,406
The Province:						
1910	4,010,300	629,313	347,705	378,969	11,104,800	71,833,731
1909	4,218,475	.....	.....	.....	.....	64,464,923
1908	4,150,510	.....	.....	.....	.....	62,975,648
1907	*	.....	.....	.....	.....	*
1906	4,543,981	567,105	285,786	314,083	9,087,860	61,528,288

*Not taken in 1907.

FARM PROPERTY, IMPLEMENTS AND LIVE STOCK.

TABLE XXII.—Showing by County Municipalities of Ontario the value of farm lands, buildings, implements and live stock for the year 1910, and the value of live stock sold or killed in the year ending June 30, 1910, together with the totals for the Province for the past five years.

Counties and Districts.	Land.	Buildings.	Implements.	Live Stock.	Total.
	$	$	$	$	$
Algoma	2,686,557	897,409	371,590	669,130	4,624,686
Brant	9,202,858	4,905,295	1,243,367	2,529,982	17,881,502
Bruce	25,587,068	10,712,691	2,649,760	7,352,542	46,302,061
Carleton	20,149,778	7,489,441	2,100,370	5,142,672	34,882,261
Dufferin	11,775,173	4,947,494	1,165,090	3,243,636	21,131,393
Dundas	9,623,134	4,386,662	1,331,759	2,675,210	18,016,765
Durham	12,458,291	5,913,844	1,461,082	3,873,678	23,706,895
Elgin	19,311,988	8,244,708	2,165,590	5,283,126	35,005,412
Essex	20,136,126	8,372,795	2,602,081	5,007,326	36,118,328
Frontenac	10,141,610	4,681,151	1,359,321	3,179,043	19,361,125
Glengarry	9,844,144	4,593,413	1,313,868	2,798,602	18,550,027
Grenville	7,081,955	3,348,666	951,742	1,992,365	13,374,728
Grey	26,124,721	13,117,484	3,402,533	9,132,315	51,777,053
Haldimand	9,471,577	5,085,321	1,460,525	2,928,631	18,946,054
Haliburton	1,364,186	493,907	186,445	474,219	2,518,757
Halton	10,189,715	4,908,326	1,123,285	2,509,547	18,730,873
Hastings	16,115,150	6,955,504	2,178,450	4,819,532	30,068,636
Huron	30,128,034	13,396,076	3,115,722	9,595,461	56,235,293
Kent	27,947,796	11,333,381	3,497,742	6,911,266	49,690,185
Lambton	22,626,889	8,891,942	2,542,591	7,034,483	41,095,905
Lanark	11,206,041	4,215,677	1,248,800	3,334,760	20,005,278
Leeds	11,120,448	4,805,246	1,289,421	3,074,105	20,289,220
Lennox & Addington	10,383,187	4,815,319	1,291,232	2,771,762	19,261,500
Lincoln	10,818,915	4,418,692	1,183,204	1,974,429	18,395,240
Manitoulin	1,567,889	688,843	247,867	679,523	3,184,122
Middlesex	35,658,465	15,112,993	3,762,439	10,318,668	64,852,565
Muskoka	3,197,513	1,391,481	443,012	913,458	5,945,464
Nipissing	3,356,936	941,999	403,459	623,118	5,325,512
Norfolk	12,516,994	5,874,744	1,649,300	3,303,926	23,344,964
Northumberland	14,616,638	7,350,570	1,796,184	4,189,058	27,952,450
Ontario	18,616,556	8,468,457	2,052,479	5,676,541	34,814,033
Oxford	23,795,026	10,663,351	2,637,856	6,825,653	43,921,886
Parry Sound	2,757,884	1,229,376	467,219	995,173	5,449,652
Peel	13,608,783	6,482,827	1,483,692	3,888,857	25,464,159
Perth	23,344,782	11,144,822	2,604,929	7,134,703	44,229,236
Peterborough	11,955,295	4,468,617	1,266,248	2,946,180	20,636,340
Prescott	10,253,376	4,268,420	1,284,087	2,307,914	18,113,797
Prince Edward	7,985,243	4,535,912	1,200,097	2,150,970	15,872,222
Rainy River	2,027,914	511,280	174,474	435,072	3,148,740
Renfrew	14,656,785	5,150,461	1,718,865	3,733,199	25,259,310
Russell	8,515,804	3,059,520	1,015,720	1,806,641	14,397,685
Simcoe	30,349,991	13,153,270	3,699,506	8,834,538	56,037,305
Stormont	8,579,599	3,512,136	933,517	2,081,308	15,106,560
Sudbury	2,643,614	536,923	281,510	462,660	3,924,707
Thunder Bay	1,501,638	214,676	92,487	174,425	1,983,226
Victoria	13,959,502	5,212,491	1,496,346	3,956,785	24,625,124
Waterloo	14,010,534	6,649,538	1,633,773	3,609,542	25,903,387
Welland	9,936,041	5,259,301	1,281,398	2,160,069	18,636,809
Wellington	22,404,433	11,400,997	2,533,568	7,124,302	43,463,300
Wentworth	14,642,370	6,843,091	1,579,437	3,116,249	26,181,147
York	28,950,479	11,461,401	2,595,942	6,659,683	49,667,505
The Province:					
1910	700,905,425	306,517,941	81,570,981	194,416,037	1,283,410,384
1909	680,789,629	297,690,826	77,790,754	184,747,900	1,241,019,109
1908	671,531,018	288,180,121	74,485,730	186,014,756	1,220,211,625
1907	674,505,427	284,672,238	72,910,875	189,484,132	1,221,572,672
1906	661,199,920	273,414,187	71,197,619	183,307,394	1,189,119,120

FARM VALUES PER ACRE.

TABLE XXIII.—Showing by County Municipalities of Ontario, average values per acre of farm property in 1910, together with the average for the Province for the past five years.

Counties and Districts.	Farm values, average per acre occupied.					Values buildings, Implements, and live stock, per acre, cleared.
	Land.	Buildings.	Implements.	Live Stock.	Total.	
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Algoma	8 59	2 87	1 18	2 14	14 78	44 64
Brant	42 68	22 75	5 77	11 73	82 93	48 82
Bruce	27 40	11 47	2 84	7 88	49 59	36 66
Carleton	35 85	13 33	3 74	9 15	62 07	41 83
Dufferin	33 05	13 89	3 27	9 10	59 31	35 40
Dundas	40 46	18 45	5 60	11 25	75 76	48 48
Durham	33 83	16 06	3 97	10 52	64 38	38 03
Elgin	44 26	18 90	4 96	12 11	80 23	44 58
Essex	47 10	19 58	6 09	11 71	84 48	48 54
Frontenac	14 43	6 66	1 94	4 52	27 55	32 47
Glengarry	34 20	15 96	4 56	9 72	64 44	44 07
Grenville	26 01	12 30	3 49	7 32	49 12	34 39
Grey	24 52	12 31	3 19	8 57	48 59	36 86
Haldimand	33 70	18 09	5 19	10 42	67 40	39 84
Haliburton	2 32	84	32	81	4 29	25 13
Halton	45 37	21 86	5 00	11 17	83 40	49 39
Hastings	15 18	6 55	2 05	4 54	28 32	32 51
Huron	37 76	16 79	3 91	12 03	70 49	39 89
Kent	49 35	20 01	6 18	12 21	87 75	47 63
Lambton	34 25	13 46	3 85	10 65	62 21	38 28
Lanark	16 73	6 29	1 86	4 98	29 86	27 08
Leeds	23 64	10 21	2 74	6 53	43 12	33 95
Lennox and Addington	23 22	10 77	2 89	6 20	43 08	34 27
Lincoln	56 78	23 19	6 21	10 36	96 54	46 70
Manitoulin	5 66	2 49	89	2 45	11 49	34 94
Middlesex	47 06	19 94	4 97	13 62	85 59	44 23
Muskoka	5 62	2 45	78	1 60	10 45	41 06
Nipissing	6 81	1 91	82	1 27	10 81	35 95
Norfolk	31 52	14 80	4 15	8 32	58 79	39 67
Northumberland	33 41	16 80	4 11	9 58	63 90	38 68
Ontario	36 91	16 79	4 07	11 25	69 02	43 63
Oxford	50 38	22 57	5 58	14 45	92 98	50 86
Parry Sound	4 45	1 99	75	1 61	8 80	31 78
Peel	47 14	22 46	5 14	13 47	88 21	45 01
Perth	45 04	21 50	5 03	13 77	85 34	46 83
Peterborough	20 90	7 81	2 21	5 15	36 07	34 49
Prescott	35 32	14 71	4 42	7 95	62 40	37 23
Prince Edward	34 03	19 33	5 12	9 17	67 65	40 19
Rainy River	5 84	1 47	50	1 25	9 06	43 35
Renfrew	14 05	4 93	1 65	3 58	24 21	29 71
Russell	33 99	12 21	4 05	7 21	57 46	44 64
Simcoe	30 62	13 27	3 73	8 92	56 54	38 70
Stormont	34 85	14 26	3 79	8 45	61 35	44 13
Sudbury	7 19	1 46	76	1 26	10 67	32 22
Thunder Bay	4 63	66	28	54	6 11	41 51
Victoria	23 30	8 70	2 50	6 60	41 10	37 41
Waterloo	45 70	21 69	5 33	11 78	84 50	47 11
Welland	43 71	23 13	5 64	9 50	81 98	47 07
Wellington	35 64	18 13	4 03	11 33	69 13	42 45
Wentworth	53 87	25 18	5 81	11 47	96 33	53 84
York	54 20	21 46	4 86	12 47	92 99	47 24
The Province:						
1910	28 37	12 41	3 30	7 87	51 95	40 67
1909	27 59	12 06	3 15	7 49	50 29	39 29
1908	27 41	11 77	3 04	7 59	49 81	38 82
1907	27 65	11 67	2 99	7 77	50 08	38 75
1906	27 23	11 26	2 93	7 55	48 97	37 42

CHEESE FACTORIES AND CREAMERIES.

TABLE XXIV.—Showing by Counties of Ontario the number of cheese factories and creameries in operation, the quantity and value of cheese and butter made, and the value of cream sold in 1910, together with comparative figures for the Province for 1908 and 1909.

Counties and Districts.	Cheese factories.				Creameries.			
	No. of factories.	Milk used.	Cheese made.	Value.	No. of creameries	Butter made.	Value.	Value of cream sold.
		Lbs.	Lbs.	$		Lbs.	$	$
Brant	7	11,399,694	1,003,077	108,639	3	120,000	27,600	.....
Bruce	5	4,983,596	458,113	51,020	9	929,000	229,699	.....
Carleton	60	59,967,417	5,676,576	611,665	....	.....	.....	.....
Dufferin	3	1,536,818	141,700	15,270	1	30,500	7,005	.....
Dundas	72	90,137,431	8,710,634	904,831	....	.....	.....	.....
Durham	6	5,287,548	488,813	52,665	2	101,700	23,890	.....
Elgin	20	44,643,606	4,062,375	435,252	6	385,955	90,230	.....
Essex	....	.....	.....	.....	3	217,000	46,920	.....
Frontenac	68	77,738,547	7,178,958	819,919	....	.....	.....	.....
Glengarry	74	68,502,879	6,275,271	654,601		.....	.....	1,572
Grenville	44	53,092,296	4,887,103	524,736	....	87,891	20,214	22,699
Grey	1	1,056,000	96,000	10,320	6	653,000	147,320	.....
Haldimand	9	13,227,301	1,207,055	131,416	4	515,781	129,740	.....
Haliburton	1	352,350	32,911	3,408	1	10,307	2,246	.....
Halton	....	.....	.....	.....	3	228,000	50,760	.....
Hastings	86	122,560,114	12,376,552	1,232,559	1	5,502	1,032	.....
Huron	4	6,634,896	604,486	65,034	8	1,298,000	297,180	.....
Kent	....	.....	.....	.....	7	494,000	111,315	.....
Lambton	12	11,708,371	1,177,919	126,941	5	570,666	114,424	.....
Lanark	48	45,777,743	4,132,663	445,578	....	.....	.....	.....
Leeds	97	122,987,028	11,403,076	1,208,805	....	.....	.....	60,608
Lennox and Add.	32	66,771,718	6,241,195	700,193	....	.....	.....	.....
Lincoln	3	4,947,088	461,746	50,043	1	145,000	33,350	.....
Middlesex	31	65,438,724	5,795,702	634,431	11	1,226,981	281,518	.....
Norfolk	18	26,627,905	2,509,009	270,565	6	288,140	66,101	.....
Northumberland	44	66,760,256	6,101,670	666,338	1	136,401	31,762	.....
Ontario	....	.....	.....	.....	7	696,695	166,593	.....
Oxford	49	115,569,125	10,545,900	1,128,337	4	1,209,053	293,261	.....
Peel	....	.....	.....	.....	1	60,000	13,800	.....
Perth	27	48,298,956	4,453,103	479,259	3	367,508	93,158	.....
Peterborough	39	45,387,217	4,132,134	451,305	1	261,455	61,387	.....
Prescott	64	55,049,259	5,342,619	560,191	....	.....	.....	2,759
Prince Edward	23	55,683,726	5,182,867	563,157	1	.....	.....	.....
Renfrew	20	14,815,624	1,272,165	149,186	3	238,485	56,552	.....
Russell	61	55,329,761	5,176,606	541,420	....	.....	.....	.....
Simcoe	....	.....	.....	.....	2	140,000	32,201	.....
Stormont	49	58,528,484	5,597,488	596,512	1	.....	.....	20,193
Victoria	11	12,524,356	1,155,028	123,851	6	384,699	89,398	.....
Waterloo	3	2,163,480	195,304	20,988	5	581,000	133,408	.....
Welland	2	2,999,625	282,105	30,465	1	60,000	13,800	.....
Wellington	6	9,129,355	832,055	85,993	3	280,808	64,856	.....
Wentworth	3	3,626,326	331,412	36,517	1	93,500	21,620	.....
York	....	.....	.....	.....	4	1,076,623	263,795	.....
The Province:								
1910	1102	1,451,244,620	135,521,390	14,491,410	121	12,893,650	3,016,135	107,831
1909	1177	.....	125,611,359	14,193,918	97	9,015,206	2,175,955	.....
1908	1177	.....	120,624,436	13,106,920	97	9,895,109	2,355,170	.....

NOTE.—The above statistics have been furnished by the Dairy Branch of the Ontario Department of Agriculture, having been compiled from returns made by the staff of instructors.

PART II.—CHATTEL MORTGAGES.

Table showing by County Municipalities of Ontario the total number and amount of Chattel Mortgages on record and undischarged on December 31st, 1910, against (1) all occupations; (2) farmers; together with totals for the Province for the past five years.

Counties and Districts.	Chattel mortgages against all occupations.				Chattel mortgages against farmers.			
	To secure existing debt.		For future indorsation.		To secure existing debt.		For future indorsation.	
	No.	Amount,	No.	Amount.	No.	Amount.	No.	Amount.
		$		$		$		$
Algoma	198	*5,052,005	1	400	94	32,393	....	.....
Brant	224	320,146	....	.....	76	54,206	....	.....
Bruce	339	167,315	1	33	221	71,165	1	33
Carleton	378	351,545	7	4,604	57	15,115	....	.....
Dufferin	91	42,164	....	.....	61	23,435	....	.....
Elgin	375	323,188	1	100,000	173	65,048	....	.....
Essex	411	196,400	2	1,400	226	75,481	1	400
Frontenac	326	176,517	....	.....	243	101,668	....	.....
Grey	503	396,824	....	.....	300	100,039	....	.....
Haldimand	132	73,951	....	.....	80	43,624	....	.....
Haliburton	73	36,400	....	.....	66	8,222	....	.....
Halton	70	58,325	....	.....	29	15,927	....	.....
Hastings	523	†8,465,869	5	4,268	349	103,266	....	.....
Huron	227	182,021	....	.....	110	64,005	....	.....
Kenora	54	203,088	1	200,000	5	3,170	....	.....
Kent	735	461,797	....	.....	582	312,491	....	.....
Lambton	417	‡1,373,296	....	.....	208	81,717	....	.....
Lanark	132	86,075	....	.....	59	29,722	....	.....
Leeds and Grenville	317	167,528	....	.....	221	112,036	....	.....
Lennox and Addington	165	79,036	....	.....	96	51,046	....	.....
Lincoln	139	140,388	1	450	30	13,441	....	.....
Manitoulin	112	35,061	2	700	84	13,930	....	.....
Middlesex	300	273,144	2	10,500	96	69,760	....	.....
Muskoka	156	89,099	....	.....	58	23,641	....	.....
Nipissing	397	§2,980,905	4	55,700	150	25,427	....	.....
Norfolk	264	201,496	....	.....	204	151,116	....	.....
Northumberland & Durham	397	**716,496	....	.....	228	114,565	....	.....
Ontario	192	126,832	1	15,000	107	44,743	....	.....
Oxford	203	126,979	....	.....	88	42,317	....	.....
Parry Sound	191	††1,786,687	1	1,400	99	18,154	....	.....
Peel	95	43,234	....	.....	72	27,388	....	.....
Perth	176	197,114	....	.....	94	62,061	....	.....
Peterborough	218	164,642	3	213,154	108	44,751	....	.....
Prescott and Russell	139	112,912	....	.....	95	40,204	....	.....
Prince Edward	116	75,632	....	.....	79	39,709	....	.....
Rainy River	33	18,127	....	.....	16	4,452	....	.....
Renfrew	128	181,718	1	300	164	69,287	1	300
Simcoe	564	624,060	....	.....	374	149,467	....	.....
Stormont, Dundas & Glen.	229	141,753	18	10,436	145	80,059	11	3,631
Sudbury	195	411,691	8	8,365	118	37,072	2	1,800
Thunder Bay	108	514,526	2	2,500	13	6,375	1	2,000
Victoria	146	225,506	2	16,351	94	31,239	....	.....
Waterloo	172	272,514	2	1,259	19	24,194	....	.....
Welland	220	178,402	3	10,500	67	13,483	....	.....
Wellington	245	175,126	....	.....	87	46,002	....	.....
Wentworth	547	504,844	3	425,094	113	49,796	1	94
York	1,118	‖2,576,522	11	18,600	138	51,874	....	.....
The Province;								
1910	12,490	31,108,900	80	1,101,014	6,196	2,658,283	18	8,258
1909	13,696	27,591,578	83	1,822,231	6,816	2,730,119	29	12,394
1908	14,227	14,065,572	84	257,040	7,098	2,768,786	23	9,558
1907	13,166	22,294,218	109	1,172,480	6,438	2,442,589	31	13,015
1906	14,640	14,927,312	97	416,520	6,993	2,709,016	25	7,614

*Including 1 Steel Co., $3,618,000; 1 Power Co., $500,000; 1 Transit Co., $300,000; and 2 Lumber Cos., $402,648.
†Including 5 manufacturers for $8,261,395 (including $5,000,000 for Canada Cement Co., which instrument was also filed in the Counties of Grey, Lennox, Peterborough and Welland). ‡Including 2 Companies for $1,100,000. §Including 5 Mining Cos. for $1,140,417, 2 Trust mortgages for $1,175,000, and 15 lumbermen, $412,791.
**Including 3 manufacturers for $487,204. ††Including 20 lumbermen for $1,407,112, and 1 Power Co., $300,000.
‖Including 35 manufacturers for $656,540, and 173 Hotels for $870,012.

ANNUAL REPORT

OF THE

Bureau of Industries

FOR THE

PROVINCE OF ONTARIO

1910

PART III.—MUNICIPAL STATISTICS

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO.)

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PART III.—MUNICIPAL STATISTICS.

POPULATION, ASSESSMENT AND MUNICIPAL DEBT.

The following statement is compiled from the summarized tables and gives population, total assessment, amount of taxes imposed, the amount of debenture and floating debt, of all municipalities of the Province of Ontario for the twenty-five years, 1886-1910.

Year	Population.	Total assessment.	Taxes imposed for all purposes, including schools.			†Debenture debt for all purposes.		Floating debt.
			Total.	Rate per head.	Mills on the dollar.	Total.	Rate per head.	
		$	$	$ c.		$	$ c.	$
1910..	2,296,157	1,331,198,191	23,941,400	10 43	17.98	*	*	*
1909..	2,289,438	1,253,980,739	22,386,619	9 78	17.85	100,441,779	43 87	13,256,765
1908..	2,244,385	1,202,670,915	20,979,084	9 35	17.44	94,092,117	41 92	12,727,530
1907..	2,199,563	1,148,980,112	19,529,258	8 88	17.00	83,980,184	38 18	15,721,344
1906..	2,141,295	1,103,504,688	18,021,428	8 42	16.33	77,898,323	36 38	12,566,149
1905..	2,101,260	1,036,910,130	16,589,522	7 90	16.00	73,590,591	35 02	10,671,987
1904..	2,077,169	906,105,659	15,553,950	7 49	17.17	68,195,775	32 83	9,509,932
1903..	2,056,365	888,495,028	14,764,032	7 18	16.62	63,927,539	31 09	8,526,493
1902..	2,037,267	859,943,263	14,146,831	6 94	16.45	61,179,468	30 03	7,760,872
1901..	2,028,889	835,697,607	13,341,355	6 58	15.96	59,496,650	29 32	7,223,781
1900..	2,013,860	822,435,670	12,992,821	6 45	15.80	57,172,802	28 39	7,768,033
1899..	2,010,748	816,765,473	12,535,284	6 23	15.35	56,389,603	28 04	6,302,266
1898..	2,001,350	809,184,833	12,222,966	6 10	15.11	54,506,372	27 11	6,883,735
1897..	1,990,977	803,625,377	12,206,325	6 13	15.19	53,577,475	26 91	6,482,953
1896..	1,972,286	814,917,633	12,122,785	6 15	14.88	52,948,275	26 85	6,261,394
1895..	1,957,390	821,466,166	12,316,429	6 29	14.99	51,895,991	26 51	5,834,129
1894..	1,936,219	826,179,370	12,320,312	6 36	14.91	49,724,587	25 68	6,669,567
1893..	1,910,059	825,530,052	12,512,660	6 56	15.17	48,083,243	25 17	6,796,422
1892..	1,909,527	825,211,127	11,803,570	6 18	14.30	47,166,962	24 70	6,469,899
1891..	1,922,121	818,847,394	11,767,748	6 12	14.37	43,888,853	22 83	7,629,730
1890..	1,917,544	798,616,271	10,897,485	5 68	13.65	40,720,985	21 24	8,387,186
1889..	1,906,901	761,905,816	10,249,198	5 37	13.45	38,988,332	20 41	6,493,519
1888..	1,880,145	748,654,570	9,919,962	5 28	13.25	34,729,527	18 47	6,437,363
1887..	1,848,457	717,311,938	9,300,113	5 03	12.97	31,943,320	17 28	5,645,208
1886..	1,828,495	694,380,659	9,009,385	4 93	12.97	29,924,863	16 37	4,841,717

* Statistics of debts for 1910 are not yet complete.

† The amount accumulated in Sinking Funds on Dec. 31, 1909, was $17,199,730, so that the net debenture debt was $83,242,049, as compared with $77,181,237 in 1908, an increase of $6,061,812, while the floating liabilities increased $529,235.

NOTE.—Up to 1904, the assessor's guide in taking the population was "the number of persons in the family of each person rated as a resident." In 1904, the Assessment Act added these words: "including such person and all other persons residing on the premises."

FINANCIAL STATEMENT—TOWNSHIP MUNICIPALITIES.

Summary Statement showing the Totals for all Townships in Ontario of the several items of Receipts, Disbursements, Assets and Liabilities for the ten years ending December 31st, 1900-1909.

Schedule.	1909.	1908.	1907.	1906.	1905.	1904.	1903.	1902.	1901.	1900.
RECEIPTS.	$	$	$	$	$	$	$	$	$	$
Balance from the previous year	732,952	702,498	809,946	743,074	751,708	725,947	723,041	678,905	574,557	502,223
Ordinary municipal revenue:										
Municipal and school taxes	7,171,657	7,076,175	6,696,218	6,459,742	5,939,729	5,567,974	5,297,520	4,983,382	4,943,362	4,812,372
Licenses (liquor and other)	34,408	38,470	38,596	44,547	38,419	40,843	45,248	42,194	47,507	41,736
Fees, rents, fines, etc.	21,028	18,256	16,368	13,249	14,265	14,652	10,741	14,848	14,601	14,265
Refund of loans, investments and deposits	200,680	234,647	194,291	273,899	280,971	272,523	219,361	152,856	121,817	207,790
Interest and dividends	65,942	63,117	65,439	60,080	63,538	61,317	61,927	57,794	55,847	55,170
Loans:										
Money borrowed for current expenses	1,425,026	1,241,101	1,314,499	1,049,985	901,851	910,303	699,904	598,030	640,063	542,259
Money borrowed on debentures for—										
Schools	169,270	179,800	232,340	80,104	106,320	118,239	79,673	79,296	81,459	57,886
Drainage.....	400,068	438,815	357,191	397,494	428,621	355,049	305,589	199,541	251,639	227,323
Other purposes	180,306	211,285	100,829	69,067	108,819	136,504	27,773	73,687	41,448	31,200
Premiums on debentures sold	10,275	7,865	2,860	3,570	7,433	4,031	6,354	5,578	3,841	5,406
Grants from county for roads, etc.	30,755	49,397	58,125	19,648	31,088	19,059	18,941	17,916	17,877	16,814
Miscellaneous	266,891	240,484	183,080	146,214	170,823	133,769	148,561	106,211	108,529	79,874
Total	10,709,258	10,501,910	10,069,782	9,360,673	8,843,585	8,360,210	7,644,633	7,010,238	6,902,547	6,594,318
DISBURSEMENTS.										
Expenses of Municipal Government:										
Allowances, salaries and commiss'ns	381,224	375,892	366,483	355,340	349,263	335,165	323,391	316,203	310,451	309,162
Law costs (including salaries)	52,447	52,279	67,745	65,414	59,225	55,538	40,916	55,095	58,316	49,098
Other expenses of municipal gover't.	134,260	132,702	131,180	121,243	114,919	114,212	109,842	102,842	97,903	99,468
Construction works:										
Roads and bridges	1,700,007	1,670,669	1,593,060	1,432,122	1,406,018	1,383,143	1,191,534	963,577	962,400	894,104
Buildings and other works	91,004	25,537	39,203	38,159	34,636	60,571	17,805	23,256	18,177	15,844
Drainage works	571,641	630,537	568,411	578,527	579,732	517,172	350,090	219,891	312,305	284,553
Support of the poor and other charities	55,823	58,003	54,655	51,779	53,345	54,157	52,777	55,565	54,948	54,417
County treasurer for levy	1,488,129	1,412,720	1,247,213	1,312,185	1,147,378	1,006,880	986,269	944,223	937,934	953,191

Payments on schools and education..	2,943,185	2,918,001	3,007,191	2,619,450	2,460,878	2,362,041	2,220,707	2,119,463	2,071,590	1,984,747
Sinking Fund investments and deposits	29,632	44,158	37,779	41,215	37,759	48,616	69,669	92,509	29,842	79,947
Other investments and special deposits.	120,548	248,501	154,075	168,993	221,454	229,695	206,278	78,025	144,171	80,341
Loans repaid:										
Debentures redeemed (principal)—										
School	91,443	85,192	79,783	78,098	69,081	74,118	70,942	67,138	59,378	67,215
Drainage	324,645	305,963	306,050	264,886	241,965	230,195	207,202	221,222	210,673	211,999
All other	112,301	106,671	73,000	75,748	117,839	58,377	58,935	55,268	55,798	99,006
Interest on loans, advances, debent's.	223,841	210,716	194,865	180,873	171,237	151,995	143,053	144,829	139,604	143,441
Moneys borrowed for current exp'ns...	1,343,259	1,308,473	1,253,146	1,011,986	881,259	756,883	695,141	628,856	585,982	558,236
Board of Health (including salaries)..	52,217	45,941	40,519	38,125	30,904	36,228	62,243	65,836	46,860	24,378
Miscellaneous	135,412	137,003	152,926	116,584	123,619	133,516	111,892	133,399	127,310	110,614
Totals	9,851,018	9,768,958	9,367,284	8,550,727	8,100,511	7,608,502	6,918,686	6,287,197	6,223,642	6,019,761
ASSETS.										
Cash in treasury	858,240	732,952	702,498	809,946	743,074	751,708	725,947	723,041	678,905	574,557
Taxes in arrears	1,623,254	1,664,566	1,628,496	1,494,402	1,489,899	1,415,301	1,312,290	1,278,210	1,191,743	1,285,700
Sinking Fund investments and deposits	105,345	158,041	191,902	197,905	241,122	517,153	522,675	385,028	182,381	234,632
Other investments and special deposits	1,122,883	1,120,307	1,029,384	1,026,544	1,047,068	792,485	788,371	881,224	1,080,904	979,676
Land, buildings, and other property..	702,389	605,141	599,815	593,890	547,885	523,948	483,497	465,572	438,951	429,001
Miscellaneous	1,701,641	1,459,464	1,441,403	1,270,597	1,215,211	1,137,925	994,865	1,013,723	1,093,559	918,667
Totals	6,113,752	5,740,471	5,593,498	5,393,284	5,284,259	5,138,520	4,827,645	4,746,798	4,666,443	4,422,233
LIABILITIES.										
County levy	392,493	390,961	370,704	329,742	431,779	444,802	388,561	369,977	372,468	380,823
Local school rates	436,043	416,524	389,039	355,748	289,265	293,966	300,001	283,875	271,587	278,484
Debentures outstanding (principal) for										
Aid to railways	358,971	389,613	324,248	354,229	381,163	433,437	433,090	449,291	500,384	509,475
Schools	903,812	825,985	731,277	582,722	580,716	543,285	499,164	490,433	481,026	458,945
Drainage	2,194,034	2,118,611	1,985,009	1,937,844	1,804,809	1,617,727	1,492,873	1,392,053	1,414,042	1,370,076
Other purposes	548,490	489,843	451,979	400,866	380,613	340,380	262,600	279,624	207,412	215,671
Due Sinking Funds	4,924	7,996	11,757	36,936	41,820	26,420	34,110	33,618	13,063	15,143
Loans for current expenses and interest	635,951	548,457	609,874	518,636	453,183	447,522	290,100	291,076	343,873	288,931
Miscellaneous	278,743	267,934	258,743	275,958	276,065	254,460	269,631	187,110	189,255	199,947
Totals	5,753,461	5,455,924	5,132,630	4,792,681	4,639,413	4,401,999	3,970,130	3,777,057	3,793,110	3,717,495

Changes in these items not otherwise accounted for are due to amendments of previous returns, and are as follows:—*Other Investments* (Assets): Increase of $380 in Ramsay township increase in value of bank stock. *Debentures* (Liabilities): Decrease of $40,000 in York township, bridge debentures assumed by City of Toronto.

FINANCIAL STATEMENT—VILLAGE AND TOWN MUNICIPALITIES.

Summary showing the Totals for all Villages and Towns in Ontario, of the several items of Receipts, Disbursements, Assets and Liabilities for the Years ending December 31st, 1900-1909.

Schedule.	1909.	1908.	1907.	1906.	1905.	1904.	1903.	1902.	1901.	1900.
RECEIPTS.	$	$	$	$	$	$	$	$	$	$
Balance from previous year	479,073	*358,399	419,925	300,811	291,810	317,169	288,047	299,611	359,702	331,695
Ordinary municipal revenue:										
Municipal and school taxes	4,632,968	4,482,786	4,129,719	3,872,512	3,503,298	3,195,221	3,098,359	2,808,365	2,642,910	2,517,770
Licenses (liquor and other)	168,715	175,666	164,333	163,698	138,131	129,786	134,677	128,287	133,539	111,054
Fees, rents, fines, etc.	112,731	108,701	113,069	90,276	83,607	77,736	78,736	73,154	67,783	65,717
Water rates, etc.	1,311,080	1,126,753	1,022,235	893,113	773,240	651,195	567,407	446,571	363,507	308,217
Refund of loans and special deposits.	127,538	523,169	427,243	427,119	341,140	307,649	258,031	229,800	174,558	172,156
Interest and dividends	439,318	124,805	113,874	103,728	101,606	75,691	67,722	56,800	59,669	56,086
Loans for current expenses	3,182,342	3,545,349	4,437,926	3,752,680	3,716,289	3,728,411	2,976,053	2,480,027	2,833,212	2,606,269
Money borrowed on debentures for—										
Schools	301,225	353,455	90,359	280,566	311,420	138,800	33,282	70,572	39,513	45,456
Other purposes	2,509,642	2,522,368	1,744,005	1,638,928	2,090,715	1,709,570	1,636,159	1,343,527	1,291,157	1,274,909
Premium on debentures sold	44,733	20,032	3,704	16,923	23,451	10,757	6,906	10,815	13,426	11,042
County grants	24,177	13,168	19,614	8,948	6,273	4,529	5,641	5,891	5,009	966
Miscellaneous	256,038	197,236	199,204	218,124	140,147	152,716	166,231	117,708	79,000	78,602
Totals	13,589,580	13,551,887	12,885,210	11,767,426	11,521,127	10,499,230	9,317,251	8,071,128	8,062,985	7,579,939
DISBURSEMENTS.										
Expenses of Municipal Government:										
Allowances, salaries and commiss'ns	236,914	223,968	223,374	203,080	199,361	188,090	174,633	169,618	157,964	146,239
Street lighting, water supply, fire protection	754,649	914,852	917,574	884,388	846,221	790,284	647,841	557,114	486,372	459,283
Law costs (including salaries)	51,231	59,240	51,818	44,669	42,807	48,086	33,020	31,327	34,819	42,671
Other expenses of government	678,866	406,885	320,473	193,134	140,144	126,540	119,439	111,579	111,779	104,948
Construction works:										
Streets, bridges and parks	1,102,276	1,038,121	1,131,981	1,113,630	881,674	968,204	857,303	712,341	669,017	744,918
Buildings and other property	237,737	210,865	209,426	99,325	154,270	103,213	142,996	124,343	86,139	37,309
Water and electric light works	1,155,675	951,169	1,008,884	1,074,529	1,163,380	1,165,233	870,806	666,132	727,344	664,433
Support of the poor & other charities	56,438	51,997	41,675	40,759	42,210	41,938	34,314	34,162	36,631	43,305
Administ'n of justice, police services	156,375	143,931	129,644	117,981	102,002	100,755	93,843	84,943	78,185	74,730
County Treasurer for levy	254,477	242,055	211,415	210,813	176,658	156,737	149,912	137,537	134,095	128,825

Payments for schools and education..	1,705,167	1,576,799	1,391,317	1,436,245	1,314,119	1,086,523	971,660	889,132	868,627	842,758
Sinking fund investments and deposits.	255,575	299,434	249,624	268,848	170,200	195,909	218,759	195,399	173,758	122,368
Other investments and special deposits	584,118	352,493	514,074	468,093	424,051	327,449	337,360	152,065	210,650	201,408
Debentures redeemed—Schools	103,299	89,261	101,237	83,619	56,713	66,713	69,423	53,244	49,940	64,022
All others ...	978,186	832,484	729,696	655,626	588,310	509,243	434,274	349,463	394,379	405,999
Interest on loans and debentures.....	1,073,047	1,032,582	962,635	888,420	804,426	727,453	689,203	601,165	579,747	538,707
Money borrowed for current expenses.	3,418,621	4,218,878	3,988,368	3,311,631	3,855,425	3,283,070	2,776,346	2,519,543	2,631,189	2,313,200
Board of Health	53,841	57,286	48,759	36,164	31,244	28,866	47,682	51,952	40,665	17,568
Miscellaneous	317,963	371,014	294,329	216,547	227,101	293,114	331,268	342,022	292,074	267,546
Totals	13,174,456	13,072,814	12,526,297	11,347,501	11,220,316	10,207,420	9,000,082	7,783,081	7,763,374	7,220,237
ASSETS.										
Cash in treasury	415,125	479,073	358,913	419,925	300,811	291,810	317,169	288,047	299,611	359,702
Taxes in arrears	1,097,474	1,069,300	1,052,089	957,257	973,603	857,757	755,891	771,265	750,907	699,422
Sinking Fund investments and deposits	*1,534,375	1,463,651	1,307,003	1,229,404	1,117,564	1,063,368	965,171	901,521	827,305	699,649
Other investments and special deposits	*2,154,471	1,882,087	1,922,757	1,669,161	1,501,201	1,294,692	1,179,305	926,020	874,087	796,182
Waterworks and electric light plant..	10,292,067	9,678,694	9,044,064	8,165,519	7,560,705	6,969,554	6,190,912	5,325,118	4,957,483	4,350,455
Other buildings and property	5,153,075	4,938,879	4,846,241	4,304,891	3,990,462	3,705,070	3,627,032	3,548,881	3,383,249	3,284,979
Miscellaneous	3,226,957	3,081,968	2,557,117	2,184,795	2,060,715	1,744,008	1,343,310	1,214,067	1,141,173	1,035,123
Totals	23,873,544	22,593,652	21,088,184	18,930,952	17,505,061	15,926,259	14,378,790	12,974,919	12,233,815	11,225,512
LIABILITIES.										
County levy	60,281	53,296	49,643	41,010	63,969	70,963	55,789	52,257	52,551	56,565
Local school rates	303,562	329,087	324,992	262,566	277,625	260,361	268,622	269,035	242,196	235,247
Debentures outstanding for—										
Aid to railways	436,791	405,679	419,941	431,198	453,974	489,310	534,302	456,746	497,282	525,038
Schools	*1,822,256	1,695,555	1,447,419	1,454,195	1,257,248	1,002,341	930,178	966,319	948,991	959,418
Other purposes ..... *	20,067,986	18,751,765	17,165,700	16,128,969	15,120,657	13,580,590	12,324,271	11,201,290	10,166,590	9,243,319
Due Sinking Funds	51,957	55,369	49,651	57,157	31,484	34,162	36,127	35,420	34,024	38,779
Loans for current expenses and interest	*1,620,408	1,839,648	2,534,219	2,065,166	1,628,245	1,765,282	1,317,168	1,115,820	1,155,695	952,373
Miscellaneous	363,968	406,982	482,610	362,399	280,117	264,294	191,470	203,109	225,392	199,154
Totals	24,727,209	23,537,381	22,474,175	20,802,660	19,113,319	17,467,303	15,657,927	14,299,996	13,322,721	12,209,893

This comparative summary is for the towns and villages as at present organized. The statistics of those cities which were towns in the earlier years have been transferred to the comparative table for the eighteen cities. Previous to incorporation most of the towns and villages formed portions of township municipalities. It is impossible to transfer statistics as in the case of the cities, so that in this summary we have 238 towns and villages in 1900, increased to 261 in 1909.

* Changes not otherwise noted have been made in these items as follows:—Decreases due to the town of East Toronto having been annexed to Toronto City. *Assets*—Sinking Funds, $22,755; other investments, $23,560. *Liabilities*—School debentures, $67,807; other debentures, $187,541. Loans for current expenses, $2,652. Changes due to other causes:—Increases, *Liabilities*—Bracebridge, add $5,210 to Loans for current expenses previously omitted. Watford, village, add $1,011 omitted in 1908. Decreases, *Assets*—Gore Bay, Sinking Funds, omit $135, previously overstated. Hensall, other investments, omit $1,000 written off Industrial mortgage. Meaford, other investments, omit $9,317, written off Industrial mortgage. Kenora, School debentures, omit $3,418, added to Local Improvement debentures. Norwich, omit $500, Sinking Fund, previously overstated.

FINANCIAL STATEMENT—

Summary Statement showing for all Municipalities in Ontario (including counties, town ments, Assets and Liabilities for the ten

Schedule.		1909.	1908.	1907.
RECEIPTS.		$	$	$
Balance from previous year	*a*	2,169,271	1,859,919	1,933,597
Ordinary municipal revenue:				
Municipal and school taxes	*b*	22,374,695	20,870,494	19,248,515
Licenses (liquor and other)	*a*	595,506	582,670	562,677
Fees, rents, tolls, fines, etc.	*a*	1,351,189	1,265,757	1,202,444
Water rates, electric light or gas rates, etc.	*c*	3,817,011	3,476,888	3,179,449
Surplus fees from Registrar	*d*	19,112	25,509	24,990
Rates from local municipalities	*d*	1,797,736	1,659,095	1,459,209
Subsidies and refunds:				
Received from Legislature on account of—				
Schools	*d*	413,604	417,003	387,576
Administration of justice	*d*	244,932	161,694	157,122
Refund of loans, investments and special deposits	*a*	7,277,966	4,256,211	5,173,184
Interest and dividends	*a*	789,087	920,831	783,743
Loans:				
Money borrowed for current expenses	*a*	8,573,689	9,317,073	12,305,443
Money borrowed on debentures (face value) for—				
School purposes	*a*	1,339,795	2,048,338	1,401,985
Other purposes	*a*	9,426,518	11,195,374	7,687,853
Non-resident taxes collected	*d*	32,621	37,557	37,280
Towns or cities separated from counties	*d*	83,076	77,215	73,220
Miscellaneous	*a*	1,838,112	1,892,772	1,261,779
Totals		62,143,920	60,064,400	56,880,066
DISBURSEMENTS.				
Expenses of municipal government:				
Attendance at meetings of council and committees	*d*	65,790	65,368	66,098
Allowances, salaries and commissions	*a*	1,125,056	1,068,384	1,034,329
Lighting of streets, water supply, fire protection.	*c*	2,733,233	2,713,517	2,611,719
Law costs (including salaries)	*a*	181,541	201,452	222,529
Other expenses of municipal government	*a*	2,215,494	1,507,008	1,357,676
Construction works:				
Roads, bridges, streets and parks	*a*	7,008,135	7,836,574	7,423,690
Grants to minor municipalities for roads	*d*	122,276	111,136	140,640
Water and electric light works	*c*	3,783,611	3,275,866	2,728,490
Buildings and other works	*a*	1,380,636	918,606	1,332,387
Drainage works	*e*	571,641	630,537	568,411
Administration of justice, gaols, police, etc.	*f*	1,706,267	1,610,039	1,481,408
Support of the poor and other charities	*a*	889,102	840,192	640,512
County treasurer for levy	*a*	1,742,606	1,654,775	1,458,628
Payments on account of schools and education	*a*	8,943,895	8,789,247	7,967,449
Sinking Fund investments and deposits	*a*	5,094,650	4,079,556	5,094,353
Other investments and special deposits	*a*	1,570,205	1,862,852	2,339,999

ONTARIO MUNICIPALITIES.

ships, villages, towns, and cities), the total of the several items of Receipts, Disburse-
years ending December 31st, 1900-1909.

1906.	1905.	1904.	1903.	1902.	1901.	1900.
$	$	$	$	$	$	$
1,794,358	1,783,091	1,736,751	2,046,125	1,578,195	1,413,467	1,645,145
18,170,927	16,528,555	15,544,148	14,939,761	14,297,780	13,644,383	13,203,140
563,090	367,774	358,243	375,233	347,740	356,352	322,151
1,068,783	1,010,352	854,759	755,232	728,062	683,629	575,683
2,723,002	2,396,917	2,019,763	1,866,174	1,688,811	1,444,789	1,349,986
22,283	18,572	16,795	17,929	14,520	12,614	16,131
1,529,950	1,320,461	1,180,799	1,115,242	1,114,766	1,060,743	1,099,357
198,212	142,464	138,341	185,600	137,792	144,370	142,954
185,966	161,477	168,108	90,283	140,288	122,330	147,437
4,434,072	2,869,165	5,014,690	2,156,043	2,186,385	2,257,041	1,444,024
638,418	628,587	617,958	525,450	548,181	502,929	514,873
10,131,946	8,871,179	9,072,489	8,241,547	7,085,441	6,260,577	6,807,547
717,607	601,999	509,618	230,055	497,068	173,272	165,842
6,762,526	6,888,250	7,374,796	4,548,817	3,261,285	4,442,646	3,031,113
37,839	33,589	28,120	32,525	34,604	36,861	42,540
80,255	64,159	74,557	68,729	93,019	90,186	89,910
1,376,761	1,070,824	1,029,301	887,306	739,626	677,752	458,722
50,435,995	44,757,415	45,739,236	38,082,051	34,493,563	33,323,941	31,056,555
54,203	48,526	54,358	47,504	42,768	41,407	39,616
998,358	929,516	873,859	838,869	817,406	794,462	773,736
2,467,053	2,312,618	2,305,688	2,077,426	1,855,821	1,709,301	1,623,999
195,103	187,117	202,028	137,526	161,833	165,563	157,984
1,157,986	873,600	607,112	607,458	482,473	597,345	529,808
6,293,307	5,461,136	5,271,546	4,613,946	3,823,574	3,564,315	3,741,106
92,960	80,045	132,130	105,007	23,657	19,873	23,829
2,673,152	2,904,694	2,309,910	1,607,030	1,318,909	1,171,264	1,358,820
998,319	903,022	629,052	633,277	627,171	368,549	334,133
578,527	579,732	517,172	350,090	219,891	312,305	284,553
1,416,958	1,322,055	1,262,586	1,202,552	1,143,062	1,157,413	1,084,909
693,369	511,583	473,614	446,204	418,343	400,945	405,953
1,522,998	1,324,036	1,163,617	1,139,361	1,083,203	1,073,442	1,083,298
6,652,508	6,211,424	5,526,701	5,188,486	4,937,354	4,685,150	4,694,876
4,358,643	3,023,711	4,245,798	2,329,689	2,046,632	1,963,474	1,266,082
2,001,785	1,209,864	1,017,906	1,296,803	611,050	757,113	753,507

FINANCIAL STATEMENT—

Summary Statement showing for all Municipalities in Ontario (including counties, bursements, Assets and Liabilities for the ten years end

Schedule.		1909.	1908.	1907.
		$	$	$
Loans repaid:				
Debentures redeemed (principal)—				
School	*b*	272,435	294,837	291,585
All other	*a*	4,144,216	2,836,117	2,717,274
Interest on loans, advances and debentures	*a*	4,286,700	3,948,443	3,638,170
Refund of money borrowed for current expenses	*a*	9,640,636	11,772,823	10,243,615
Non-resident taxes paid	*d*	35,276	38,517	34,120
Board of Health (including salaries)	*b*	360,486	339,535	295,197
Miscellaneous	*a*	1,410,246	1,499,748	1,331,868
Totals		59,284,133	57,895,129	55,020,147
ASSETS.				
Cash in treasury (exclusive of Sinking Funds)	*a*	2,859,787	2,169,271	1,859,919
Taxes in arrears	*b*	4,744,786	4,738,785	4,475,980
Rates due from local municipalities	*d*	570,751	586,376	550,244
Sinking Fund investments and deposits	*a*	17,199,730	16,910,880	15,768,040
Other investments and special deposits	*a*	5,831,716	6,739,762	6,216,163
Waterworks and electric light plants	*c*	31,766,492	29,693,258	26,997,734
*Other buildings and property	*a*	32,519,760	30,626,301	27,457,129
Miscellaneous	*a*	17,218,517	15,323,648	14,204,551
Totals		112,711,539	106,788,281	97,529,760
LIABILITIES.				
County levy	*g*	452,774	444,257	420,347
School rates and grants unpaid	*a*	783,162	841,043	790,269
Debentures outstanding (principal) for—				
Aid to railways	*a*	3,489,149	3,285,226	3,573,127
Schools	*b*	9,777,516	8,713,574	6,959,974
All other purposes	*a*	87,175,114	82,093,317	73,447,083
Loans for current expenses and interest due on same	*a*	5,230,473	6,317,176	8,738,714
Local municipalities for non-resident taxes	*d*	8,458	11,113	12,073
Miscellaneous	*a*	6,781,898	5,113,941	5,759,941
Totals		113,698,544	106,819,647	99,701,528

* Exclusive of school property.

ONTARIO MUNICIPALITIES.—*Concluded.*

townships, villages, towns, and cities), the total of the several items of Receipts, Dising December 31st, 1900-1909.—*Concluded.*

1906.	1905.	1904.	1903.	1902.	1901.	1900.
$	$	$	$	$	$	$
195,755	176,562	185,372	179,700	208,271	166,868	181,157
3,014,307	1,917,880	3,441,882	1,850,123	1,873,592	2,123,937	2,231,993
3,253,246	3,115,762	2,961,166	2,784,757	2,762,612	2,709,953	2,652,749
8,738,266	8,759,211	9,435,267	7,677,580	6,596,080	6,660,448	5,429,438
37,493	30,889	28,790	46,584	34,835	40,847	42,272
243,454	202,187	201,976	214,381	238,717	198,002	128,250
864,648	877,887	1,108,615	970,947	1,120,184	1,063,770	821,020
48,502,398	42,963,057	43,956,145	36,345,300	32,447,438	31,745,746	29,643,088
1,933,597	1,794,358	1,783,091	1,736,751	2,046,125	1,578,195	1,413,467
4,106,898	4,102,479	3,943,057	3,829,618	3,916,407	4,159,807	4,252,611
438,060	579,976	579,103	527,890	482,437	610,246	489,635
14,281,901	13,336,823	12,516,290	12,099,680	11,044,846	10,442,683	10,104,879
5,376,207	4,430,001	3,883,220	4,070,337	3,698,117	3,835,209	3,741,275
24,701,688	22,752,069	21,106,360	18,981,162	17,804,397	16,995,522	16,203,624
25,976,658	24,765,171	23,798,114	22,896,172	22,674,469	22,139,669	21,986,563
12,270,710	11,002,097	9,519,195	9,293,238	8,232,626	7,472,707	7,004,484
89,085,719	82,762,974	77,128,430	73,434,848	69,899,424	67,234,038	65,196,538
370,752	495,748	515,765	444,350	422,234	425,019	437,388
686,254	611,098	597,570	609,447	590,801	541,491	565,055
3,631,288	3,712,231	3,674,259	3,733,760	3,697,804	3,740,675	3,689,546
5,849,474	5,327,622	4,901,793	4,577,471	4,527,116	4,241,070	4,169,382
68,417,566	64,550,738	59,619,723	55,616,308	52,954,548	51,514,905	49,313,874
6,591,242	4,917,791	4,820,258	5,178,828	4,670,123	4,190,162	4,602,864
8,913	8,567	5,867	6,537	20,192	7,308	11,295
4,908,988	4,638,783	3,570,472	2,287,331	2,057,522	2,059,801	2,151,431
90,464,472	84,262,578	77,705,707	72,454,032	68,940,340	66,720,431	64,940,835

(*a*) All municipalities. (*b*) Townships, cities, towns and villages. (*c*) Cities, towns and villages.
(*d*) Counties. (*e*) Townships. (*f*) Counties, cities, towns and villages. (*g*) Townships, towns and villages.

ELECTRIC AND OTHER STREET LIGHTING PLANTS OWNED AND OPERATED BY MUNICIPALITIES IN ONTARIO IN 1909.

The following Cities of Ontario owned and operated Gas or Electric Light Plants in the year 1909, aggregating in value $3,289,836.

Belleville	108,759	Ottawa	325,000
Chatham	21,500	Port Arthur	‡822,484
Fort William	*553,985	St. Thomas	‖330,450
Guelph	†505,596	Toronto	¶33,717
Kingston	323,243	Windsor	30,000
London	29,680	Woodstock	77,665
Niagara Falls	127,757		

* Including $135,485 for Telephone System and $244,500 for Street Railway.
† Including $122,451 for Radial Railway.
‡ Including $105,500 for Telephone System and $351,984 for Street Railway.
‖ Including $75,000 for Street Railway owned by City but operated on lease by a Company.
¶ Being $15,000 for Electric Light Plant taken over from former City of West Toronto on its being annexed to Toronto City, and $18,717 for Electric Light Plant taken over from former Town of East Toronto on its annexation to the City.

The following villages and towns in the Province of Ontario owned and operated Gas or Electric Plants in the year 1909, aggregating in value $3,053,474.

Acton	8,200	Milton	14,635
Alexandria	13,000	Milverton	200
Almonte	38,000	Mitchell	15,000
Amherstburg	5,300	Morrisburg	100,100
Aylmer	25,000	Mount Forest	13,000
Barrie	82,990	Napanee	46,000
Beeton	6,000	Newmarket	19,243
Berlin	*449,969	Niagara	24,000
Blenheim	12,500	North Toronto	9,000
Bobcaygeon	25,000	Oakville	15,000
Bothwell	6,200	Orillia	‡300,000
Bracebridge	70,000	Owen Sound	220,415
Brockville	123,595	Palmerston	14,000
Brussels (Telephone)	16,000	Paris	53,795
Chippawa (Gas)	1,100	Parry Sound	69,144
Clifford (Acet. Gas)	3,025	Perth	13,000
Cobalt (Arc Lights)	500	Picton	30,000
Collingwood	27,708	Port Colborne	725
Deseronto (Gas)	20,000	Port Perry	8,000
Dresden	13,000	Port Rowan	150
Dundalk	5,000	Port Stanley	300
Fenelon Falls (estimate)	20,000	Prescott	18,000
Fort Erie	3,636	Preston	42,159
Fort Frances	4,500	St. Mary's	20,000
Glencoe	12,500	Stirling	6,531
Goderich	40,812	Strathroy	19,000
Gore Bay	250	Streetsville	22,500
Haileybury	12,875	Sturgeon Falls	47,236
Hespeler	10,357	Sudbury	63,828
Huntsville	21,876	Thamesville	6,250
Iroquois	10,000	Thessalon	12,281
Kenora	†435,452	Thorold	25,000
Kincardine	20,781	Tottenham	6,000
Kingsville (Nat. gas)	2,500	Trenton	9,000
Leamington (Nat. gas)	25,000	Waterloo	49,295
Listowel	15,000	Weston	9,550
Madoc	16,010	Whitby	26,191
Markham	8,000	Wingham	30,000
Merritton	11,064	Woodville	600
Midland	50,046	Wroxeter	1,600

* Including $109,828 for Street Railway.
† Including $372,534 for Hydro-Electric Power plant and $16,810 for Telephone System.
‡ Including Power Transmission plant.

ASSESSMENT AND TAXATION.

Summary statement of the assessed values and amount of Taxes imposed, shown by the collection rolls, together with the average rate of taxes per head of population assessed as resident, and rate in mills on the dollar of total assessed value for the ten years, 1901 to 1910, classified as *rural* (townships), *urban* (incorporated villages and towns) and *cities*.

Municipalities.	No. organized.	Assessed Values.				Taxes imposed for all purposes.		
		Real property.	Business Assessm't.	Taxable Income.	Total.	Total	Per head.	Mills on $
1910		$	$	$	$	$	$	
Rural	539	609,204,275	5,015,602	7,035,469	621,255,346	7,529,615	7 35	12.12
Urban	265	179,144,933	18,623,257	4,810,535	202,578,725	4,968,697	9 58	24.53
Cities	18	436,693,153	51,828,164	18,842,803	507,364,120	11,443,088	15 21	22.55
Totals.	822	1,225,042,361	75,467,023	30,688,807	1,331,198,191	23,941,400	10 43	17.98
1909								
Rural	537	597,443,550	4,883,579	4,846,156	607,173,285	7,149,315	6 81	11.77
Urban	261	170,070,949	18,618,911	4,806,035	193,495,895	4,702,019	9 13	24.30
Cities	18	388,350,852	46,391,669	18,569,038	453,311,559	10,535,285	14 53	23.24
Totals.	816	1,155,865,351	69,894,159	28,221,229	1,253,980,739	22,386,619	9 78	17.85
1908								
Rural	532	592,945,755	4,545,214	4,267,353	601,758,322	7,001,102	6 69	11.63
Urban	259	162,876,679	17,723,550	5,332,270	185,932,499	4,421,107	8 74	23.78
Cities	18	354,782,058	44,233,274	15,964,762	414,980,094	9,556,875	13 82	23.03
Totals.	809	1,110,604,492	66,502,038	25,564,385	1,202,670,915	20,979,084	9 35	17.44
1907								
Rural	529	587,270,564	4,516,285	2,807,996	594,594,845	6,809,382	6 52	11.45
Urban	254	153,662,486	17,328,762	4,563,756	175,555,004	4,133,291	8 40	23.54
Cities	18	324,357,189	40,328,503	14,144,571	378,830,263	8,586,585	12 93	22.67
Totals.	801	1,065,290,239	62,173,550	21,516,323	1,148,980,112	19,529,258	8 88	17.00
1906								
Rural	526	581,969,656	4,877,833	1,378,261	588,225,750	6,390,362	6 09	10.86
Urban	247	145,376,781	17,414,919	4,399,275	167,190,975	3,813,922	8 11	22.81
Cities	18	296,239,305	37,201,566	14,647,092	348,087,963	7,817,144	12 59	22.46
Totals.	791	1,023,585,742	59,494,318	20,424,628	1,103,504,688	18,021,428	8 42	16.33
1905								
Rural	520	565,625,864	4,494,627	1,036,491	571,156,982	5,967,495	5 64	10.45
Urban	244	138,462,473	15,116,859	3,760,422	157,339,754	3,527,855	7 77	22.42
Cities	18	274,160,988	26,411,091	7,841,315	308,413,394	7,094,172	12 05	23.00
Totals.	782	978,249,325	46,022,577	12,638,228	1,036,910,130	16,589,522	7 90	16.00
1904								
Rural	518	477,209,517	2,324,830	259,315	479,793,662	5,617,682	5 27	11.71
Urban	242	122,386,118	10,298,311	1,577,489	134,261,918	3,233,566	7 25	24.08
Cities	18	260,094,014	24,748,458	7,207,607	292,050,079	6,702,702	11 87	22.95
Totals.	778	859,689,649	37,371,599	9,044,411	906,105,659	15,553,950	7 49	17.17
1903								
Rural	509	475,302,111	2,237,536	305,153	477,844,800	5,326,380	4 95	11.15
Urban	238	117,932,882	9,332,535	1,708,786	128,974,203	3,014,676	6 92	23.37
Cities	18	252,350,423	20,860,193	8,465,409	281,676,025	6,422,976	11 79	22.80
Totals.	765	845,585,416	32,430,264	10,479,348	888,495,028	14,764,032	7 18	16.62
1902								
Rural	506	463,499,678	2,172,336	274,014	465,946,028	5,035,380	4 65	10.81
Urban	234	111,570,740	9,112,564	1,675,179	122,358,483	2,806,916	6 55	22.94
Cities	18	242,808,884	20,691,002	8,138,866	271,638,752	6,304,535	11 99	23.21
Totals.	758	817,879,302	31,975,902	10,088,059	859,943,263	14,146,831	6 94	16.45
1901								
Rural	503	456,004,618	2,145,858	241,670	458,392,146	4,866,415	4 46	10.62
Urban	233	106,543,634	8,737,989	1,583,112	116,864,735	2,607,196	6 19	22.31
Cities	18	233,850,103	18,910,061	7,680,562	260,440,726	5,867,744	11 35	22.53
Totals.	754	796,398,355	29,793,908	9,505,344	835,697,607	13,341,355	6 58	15.96

1905 is the first year for business assessment. The figures for previous years are for personal property. In the case of annexation of municipalities former published statistics have been adjusted for purpose of comparison as at present constituted.

POPULATION.

Table showing by counties and districts (including townships, villages, towns and cities) the Population of Ontario as taken by the Municipal Assessors in the past five years 1906-10, and preceding quinquennial years 1905, 1900, 1895, 1890.

Counties and Districts	1910	1909	1908	1907	1906	1905	1900	1895	1890
Algoma	23,549	23,059	22,723	21,186	20,433	20,454	10,840	7,357	4,926
Brant	39,741	38,825	38,616	37,456	36,082	36,378	33,558	34,119	33,036
Bruce	50,294	51,519	51,743	52,311	52,065	52,494	55,263	58,355	58,486
Carleton	114,160	111,482	107,422	102,968	100,645	97,855	90,260	80,157	73,073
Dufferin	17,338	18,552	18,652	18,813	18,779	19,236	21,214	21,745	21,036
Dundas	16,999	16,939	17,481	17,476	17,158	17,426	18,760	18,125	18,776
Durham	24,510	24,599	24,801	24,754	25,165	25,346	27,047	29,685	31,058
Elgin	43,533	43,416	42,443	41,416	41,684	41,451	41,056	40,518	39,877
Essex	63,369	61,881	61,184	60,378	59,227	59,203	56,080	53,169	50,877
Frontenac	38,699	39,646	40,410	39,011	39,278	39,179	39,630	40,114	41,013
Glengarry	19,549	20,068	19,261	20,451	19,858	20,582	19,495	20,121	19,803
Grenville	16,809	17,462	17,283	17,511	18,234	18,242	19,187	19,032	19,700
Grey	62,222	64,036	64,236	64,815	65,513	65,074	65,333	66,094	64,775
Haldimand	19,971	19,879	19,652	19,239	19,209	19,438	20,545	20,787	20,949
Haliburton	5,876	5,949	5,894	5,898	5,946	5,945	5,858	5,975	5,670
Halton	20,464	20,205	19,793	19,660	19,692	18,794	19,113	19,922	20,630
Hastings	52,932	53,761	53,955	53,902	53,609	52,394	55,737	55,777	54,651
Huron	53,200	53,934	54,764	54,855	55,589	56,072	60,112	61,744	61,771
Kenora	7,864	8,806	8,179	6,732	6,458	5,627	6,732	3,587	2,256
Kent	53,488	53,558	52,398	52,535	52,194	52,309	53,512	51,505	52,684
Lambton	48,345	49,367	50,512	51,016	51,758	51,554	52,453	52,533	52,890
Lanark	32,699	33,765	34,302	33,641	33,574	34,235	36,539	35,659	34,617
Leeds	34,097	34,324	34,060	34,079	34,254	33,896	35,013	35,420	36,053
Lennox and Add	18,905	19,789	19,992	19,753	20,245	21,033	22,592	21,557	22,213
Lincoln	33,307	33,253	32,354	31,899	30,952	30,718	29,576	29,329	29,069
Manitoulin	6,760	6,928	7,007	6,867	6,631	6,775	6,310	5,484	5,537
Middlesex	93,829	97,318	96,291	94,751	92,303	91,402	90,917	89,426	87,842
Muskoka	18,752	19,246	19,692	19,302	19,622	19,684	18,334	16,663	14,693
Nipissing	43,531	37,837	33,748	30,304	22,985	19,013	10,883	9,286	7,365
Norfolk	26,493	26,648	25,962	26,011	26,066	26,326	27,868	28,454	29,415
Northumberland	32,512	32,283	32,331	31,774	32,264	31,725	33,205	34,845	35,985
Ontario	38,382	38,659	38,448	39,021	38,664	38,563	39,463	41,142	43,000
Oxford	46,018	46,806	45,820	45,410	44,893	44,791	45,588	46,229	47,489
Parry Sound	17,641	17,774	18,057	18,452	17,970	17,065	15,285	13,778	11,374
Peel	19,611	20,014	19,542	19,348	19,568	19,077	20,372	21,689	22,482
Perth	49,232	50,008	50,560	49,732	49,232	49,037	48,139	49,054	49,677
Peterborough	36,989	37,547	37,455	36,708	35,581	34,931	34,515	34,052	31,552
Prescott	25,719	26,002	25,645	25,333	25,486	25,968	24,867	22,951	21,428
Prince Edward	16,221	16,143	16,285	16,050	16,106	15,922	16,908	17,643	17,230
Rainy River	7,295	6,811	6,585	6,423	5,827	4,762	1,183	249	.....
Renfrew	48,387	49,017	48,524	48,077	49,057	48,663	47,548	44,895	41,317
Russell	18,848	18,947	19,417	18,566	18,153	17,497	16,677	16,028	16,487
Simcoe	79,780	81,184	81,593	81,220	81,167	80,374	77,927	75,799	74,103
Stormont	23,285	23,831	23,605	23,889	23,482	24,477	23,790	23,137	23,647
Sudbury	17,514	16,346	17,676	15,858	14,275	12,989	6,945	4,337	1,936
Thunder Bay	35,917	32,558	29,710	29,557	21,834	16,022	7,875	5,575	5,563
Victoria	28,692	28,705	28,730	28,362	29,267	29,528	30,661	29,893	30,626
Waterloo	60,560	59,133	58,157	57,673	55,326	54,653	52,428	49,320	48,429
Welland	38,390	37,014	35,666	35,828	32,853	32,282	29,313	29,487	27,735
Wellington	53,765	54,229	53,828	53,683	53,604	53,774	54,307	56,078	56,780
Wentworth	99,510	99,340	95,818	91,325	87,966	85,752	79,011	75,302	74,185
York	400,604	391,036	366,123	348,284	323,512	305,273	258,036	234,208	221,778

POPULATION.

Table showing the population of Ontario for twenty-one years, 1890-1910, classified by townships, villages and towns, and cities according to present boundaries throughout.*

Year.	Townships.	Villages and Towns.	Cities.	Total.
1910	1,025,160	518,717	752,280	2,296,157
1909	1,049,240	515,078	725,120	2,289,438
1908	1,047,111	505,681	691,593	2,244,385
1907	1,043,658	491,923	663,982	2,199,563
1906	1,049,935	470,506	620,854	2,141,295
1905	1,058,379	454,147	588,734	2,101,260
1904	1,066,346	446,134	564,689	2,077,169
1903	1,075,773	435,811	544,781	2,056,365
1902	1,083,093	427,428	526,746	2,037,267
1901	1,090,758	421,325	516,806	2,028,889
1900	1,094,246	415,907	503,707	2,013,860
1899	1,108,874	409,515	492,359	2,010,748
1898	1,109,940	407,553	483,857	2,001,350
1897	1,112,655	403,559	474,763	1,990,977
1896	1,112,264	396,609	463,413	1,972,286
1895	1,109,013	390,585	457,792	1,957,390
1894	1,103,230	383,281	449,708	1,936,219
1893	1,096,271	376,798	436,990	1,910,059
1892	1,101,717	375,670	432,140	1,909,527
1891	1,115,089	376,615	430,417	1,922,121
1890	1,117,533	375,241	424,770	1,917,544

*For example, the village of Ashburnham having become annexed to the city of Peterborough in 1904, the statistics of the two are combined in the "cities" throughout the table. This has not been possible, however, where portions of townships have become annexed to other municipalities.

POPULATION, AREA, ASSESSMENT, EXEMPTIONS AND TAXATION.

The following statement has been compiled from the returns from the Assessment and Collection Rolls of the Province of Ontario, for the year 1910.

Assessment.	Townships.	Villages and Towns.	Cities.	Total.
No. of Municipalities	539	265	18	822
Population assessed as resident	1,025,160	518,717	752,280	2,296,157
No. of acres assessed	24,706,699	248,345	80,311	25,035,355
Real property (taxable and exempt):	$	$	$	$
(1) Exclusive of buildings	448,928,692	62,101,497	219,468,296	730,498,485
(2) Buildings	177,481,859	147,489,863	305,996,890	630,968,612
Assessed for municipal and school rates:				
(1) Real property	606,591,209	175,074,239	429,236,397	1,210,901,845
(2) Business assessment	4,346,772	17,253,785	50,159,408	71,759,965
(3) Income	*7,035,469	4,810,535	18,842,803	30,688,807
Assessed for school rates only:				
(1) Real property	2,613,066	4,070,694	7,456,756	14,140,516
(2) Business assessment	668,830	1,369,472	1,668,756	3,707,058
Total assessment for school rates	621,255,346	202,578,725	507,364,120	1,331,198,191
Net amount liable for municipal rates	617,973,450	197,138,559	498,238,608	1,313,350,617
Real property exempt from taxation or liable for local improvements only	17,206,276	30,446,427	88,772,033	136,424,736
†Total real property exempt from municipal rates 1910	19,819,342	34,517,121	96,228,789	150,565,252
†Total real property exempt from municipal rates 1909	18,046,950	30,951,155	85,833,547	134,831,652
Taxes levied for all school purposes	2,949,745	1,669,285	3,347,394	7,966,424
Taxes levied for municipal purposes, local improvement rates, dog taxes, statute labor commuted, etc.	4,579,870	3,299,412	8,095,694	15,974,976
Total taxes levied in 1910	7,529,615	4,968,697	11,443,088	23,941,400
Taxation per head of population:	$ c.	$ c.	$ c.	$ c.
School	2 88	3 22	4 45	3 47
Municipal	4 47	6 36	10 76	6 96

* This includes an income assessment of $5,752,536 in Coleman Tp., Nipissing.

† In addition to this there are numerous fixed assessments in which cases many assessors fail to value the amount exempted; also "conditional" exemptions, on which taxes are levied and afterwards remitted.

STATISTICS

OF

ONTARIO MUNICIPALITIES

FINANCIAL STATEMENTS FOR 1909

POPULATION, ASSESSMENT AND TAXATION FOR 1910

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities and Counties in which located.	Receipts, 1909.						
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$
1 Adelaide, Middlesex	10,820	15,908	90	.....	79	.....	1,500
2 Adjala, Simcoe	92	11,634	66	.....	.....	.....	2,700
3 Admaston, Renfrew	753	8,210	.....	2	21	.....	.....
4 Adolphustown, Lennox & Addn.	307	4,066	.....	16	95	265	.....
5 Albemarle, Bruce	390	5,114	51	1	8	.....	676
6 Alberton, Rainy River	305	3,144	.....	.....	.....	.....	1,200
7 Albion, Peel	999	14,347	150	2	.....	.....	2,700
8 Aldborough, Elgin	11,007	31,809	88	12	526	320	22,000
9 Alfred, Prescott	42	11,843	315	49	.....	.....	1,700
10 Algona S., Renfrew	385	1,497	.....	.....	.....	.....	.....
11 Alice and Fraser, Renfrew	314	5,970	.....	22	.....	.....	.....
12 Alnwick, Northumberland	654	4,369	58	13	1	4	500
13 Amabel, Bruce	2,768	12,898	.....	1	33	.....	.....
14 Amaranth, Dufferin	54	15,526	.....	4	.....	.....	13,489
15 Ameliasburg, Prince Edward	.....	12,974	.....	3	1,186	16,226	1,936
16 Amherst Island, Lennox & Addn.	1,542	4,366	50	9	.....	.....	200
17 Ancaster, Wentworth	.....	25,791	.....	41	1,362	5,324	.....
18 Anderdon, Essex	.....	15,315	90	.....	.....	.....	5,996
19 Anson and Hindon, Haliburton	244	976	.....	.....	.....	.....	.....
20 Armour, Parry Sound	748	3,862	2	.....	7	.....	400
21 Arran, Bruce	1,299	14,330	.....	9	.....	.....	400
22 Artemesia, Grey	2,714	17,348	.....	33	571	1,165	2,849
23 Arthur, Wellington	806	19,612	45	6	15	.....	4,100
24 Ashfield, Huron	1,461	15,229	.....	.....	60	.....	100
25 Asphodel, Peterborough	.....	11,834	.....	18	.....	.....	4,000
26 Assiginack, Manitoulin	243	5,164	43	8	.....	.....	.....
27 Athol, Prince Edward	2,196	5,667	.....	.....	79	1,426	.....
28 Atwood & Curran, Rainy River	.....	2,051	.....	.....	.....	.....	4,248
29 Augusta, Grenville	1,180	20,299	79	709	600	279	2,700
30 Bagot and Blythfield, Renfrew	997	3,554	105	15	13	.....	.....
31 Balfour, Sudbury	648	5,924	118	53	.....	.....	2,400
32 Bangor W. & McClure, Hastings	.....	1,646	39	.....	.....	.....	880
33 Barrie, Frontenac	187	1,628	40	.....	.....	.....	.....
34 Barton, Wentworth	260	30,801	520	605	345	4,754	891
35 Bastard and Burgess S., Leeds	.....	16,436	100	27	498	.....	1,366
36 Bathurst, Lanark	1,435	9,931	.....	4	26	.....	2,329
37 Bayham, Elgin	2,616	27,757	248	143	61	.....	17,000
38 Beckwith, Lanark	479	8,948	48	8	384	.....	.....
39 Bedford, Frontenac	779	6,699	30	6	.....	.....	.....
40 Belmont & Methuen, Peterborough	574	7,405	.....	.....	.....	.....	500
41 Bentinck, Grey	1,416	16,165	36	96	30	.....	4,000
42 Bertie, Welland	785	29,906	416	58	7	.....	11,500
43 Beverly, Wentworth	5,314	24,811	.....	.....	1,003	2,803	.....
44 Bexley, Victoria	492	4,413	72	9	.....	.....	.....
45 Biddulph, Middlesex	478	14,364	116	.....	.....	.....	2,000
46 Billings, Manitoulin	376	1,805	39	10	.....	.....	500
47 Binbrook, Wentworth	68	9,959	.....	.....	.....	.....	2,150
48 Blandford, Oxford	3,361	13,447	54	143	94	.....	1,000

MUNICIPALITIES, FOR THE YEAR 1909.

ASSETS AND LIABILITIES, 1909.

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
1,900	.....	.....	.....	.....	753	31,050	744	6	303	2,774	525	1
.....	.....	.....	.....	.....	73	14,565	785	12	293	3,291	.....	2
.....	.....	.....	.....	.....	153	9,139	404	11	195	1,183	.....	3
.....	.....	.....	.....	.....	44	4,793	218	.....	79	398	.....	4
.....	.....	.....	.....	238	278	6,756	538	6	161	1,353	100	5
.....	.....	.....	.....	.....	*2,046	6,695	291	.....	53	3,615	.....	6
.....	.....	.....	.....	.....	406	18,604	858	9	312	2,790	.....	7
1,000	4,307	.....	.....	.....	†2,473	73,542	1,470	517	736	6,796	725	8
.....	.....	.....	.....	38	96	14,083	600	85	140	2,369	.....	9
.....	.....	.....	.....	.....	86	1,968	217	18	74	11	.....	10
.....	.....	.....	.....	.....	212	6,518	293	2	106	473	.....	11
.....	.....	.....	.....	10	166	5,775	410	.....	136	1,194	.....	12
.....	.....	.....	.....	167	590	16,457	778	20	313	1,750	.....	13
.....	.....	7,800	165	.....	309	37,347	666	18	430	8,600	.....	14
.....	.....	.....	.....	.....	161	32,486	581	.....	283	1,276	27	15
.....	.....	.....	.....	739	82	6,988	226	.....	115	770	.....	16
.....	.....	.....	.....	.....	413	32,931	1,277	36	370	4,131	.....	17
.....	1,233	998	22	.....	429	24,083	679	254	321	3,310	.....	18
.....	.....	.....	.....	.....	34	1,254	152	.....	41	119	.....	19
.....	.....	.....	.....	.....	37	5,056	385	35	124	1,092	.....	20
.....	.....	.....	.....	340	85	16,463	653	3	152	3,491	.....	21
.....	.....	1,350	.....	5	216	26,251	1,048	61	443	2,755	894	22
.....	.....	.....	.....	.....	324	24,908	953	10	233	4,948	.....	23
.....	.....	.....	.....	58	346	17,254	850	100	192	2,910	.....	24
.....	.....	.....	.....	.....	155	16,007	500	10	175	1,824	60	25
.....	.....	.....	.....	.....	908	6,366	326	.....	63	1,914	.....	26
.....	.....	.....	.....	200	22	9,590	263	.....	122	828	56	27
.....	.....	.....	.....	.....	.....	6,299	449	.....	100	927	.....	28
.....	.....	.....	.....	.....	105	25,951	1,171	51	554	3,845	.....	29
.....	.....	.....	.....	.....	58	4,742	358	110	200	516	.....	30
2,000	.....	.....	.....	.....	.....	11,143	566	73	196	2,331	.....	31
.....	.....	.....	.....	325	28	2,918	197	.....	39	376	.....	32
.....	.....	.....	.....	30	57	1,942	226	.....	53	44	.....	33
.....	.....	42,261	2,646	.....	1,168	84,251	2,921	2,616	1,014	47,712	.....	34
.....	.....	.....	.....	.....	368	18,795	755	79	219	4,435	61	35
.....	.....	.....	.....	.....	145	13,870	650	100	226	462	.....	36
.....	.....	.....	.....	.....	116	47,941	833	111	477	9,663	50	37
.....	.....	.....	.....	.....	109	9,976	510	.....	135	1,050	.....	38
.....	.....	.....	.....	.....	96	7,610	403	2	101	563	.....	39
850	.....	.....	.....	100	397	9,826	397	.....	121	791	45	40
.....	.....	.....	.....	100	320	22,163	586	4	252	3,724	136	41
.....	.....	.....	.....	.....	359	43,031	966	10	627	8,433	.....	42
.....	.....	.....	.....	.....	382	34,313	1,179	100	363	3,107	.....	43
.....	.....	.....	.....	36	.....	5,022	330	17	120	751	.....	44
.....	.....	.....	.....	.....	402	17,360	746	7	267	3,342	.....	45
.....	.....	.....	.....	.....	1,375	4,105	266	5	62	1,677	.....	46
.....	.....	.....	.....	.....	93	12,270	540	25	158	2,780	.....	47
.....	4,431	.....	9	183	722	23,444	677	3	190	3,651	1,220	48

* Including $2,000 Grant from Ontario Government for roads.
† Including $1,456 from other municipalities as share of debts.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.—*Continued.*						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
1 Adelaide	401	7	7,015	6,726	640	.....	.....
2 Adjala	.....	26	3,090	3,983	.....	.....	.....
3 Admaston	6	70	2,952	3,252	.....	.....	.....
4 Adolphustown	6	19	1,546	1,312	.....	.....	.....
5 Albemarle	26	67	482	1,880	.....	76	.....
6 Alberton	.....	5	.....	792	20	.....	.....
7 Albion	25	47	3,915	6,196	.....	.....	.....
8 Aldborough	99	144	5,202	10,117	4,932	1,988	.....
9 Alfred	25	164	2,179	6,703	.....	.....	.....
10 Algona S.	42	.....	250	1,041	.....	.....	.....
11 Alice and Fraser	.....	10	1,721	3,623	.....	.....	.....
12 Alnwick	56	10	880	1,843	.....	.....	.....
13 Amabel	73	18	2,184	6,221	.....	.....	.....
14 Amaranth	43	42	2,586	7,934	978	.....	7,965
15 Ameliasburg	43	.....	3,904	7,316	.....	1,150	25
16 Amherst Island	.....	101	3,249	2,110	.....	.....	.....
17 Ancaster	154	575	8,757	9,009	.....	.....	6,550
18 Anderdon	25	209	1,657	6,082	566	.....	.....
19 Anson and Hindon	.....	.....	213	572	.....	.....	.....
20 Armour	2	16	.....	2,188	.....	.....	.....
21 Arran	52	10	4,441	5,487	.....	.....	.....
22 Artemesia	109	.....	2,554	9,197	.....	1,237	1,350
23 Arthur	38	89	5,693	7,861	340	.....	.....
24 Ashfield	18	10	4,322	7,255	.....	.....	.....
25 Asphodel	36	182	3,297	5,315	.....	.....	.....
26 Assiginack	.....	252	.....	3,238	.....	.....	.....
27 Athol	20	22	1,700	2,763	.....	.....	1,428
28 Atwood and Curran	.....	.....	.....	268	.....	.....	.....
29 Augusta	51	52	3,430	11,095	450	178	88
30 Bagot and Blythfield	10	99	475	2,227	.....	.....	.....
31 Balfour	5	5	.....	5,407	.....	.....	.....
32 Bangor, Wicklow and McClure	108	5	390	1,494	.....	.....	.....
33 Barrie	6	25	259	1,102	.....	.....	.....
34 Barton	1,320	648	4,474	9,175	.....	3,389	2,750
35 Bastard and Burgess S.	29	67	2,404	8,596	.....	.....	.....
36 Bathurst	20	10	3,556	5,326	437	.....	.....
37 Bayham	101	39	3,872	9,466	7	.....	.....
38 Beckwith	12	98	2,671	4,487	.....	.....	.....
39 Bedford	.....	45	2,348	3,053	.....	.....	.....
40 Belmont and Methuen	1,094	12	1,081	4,118	.....	.....	.....
41 Bentinck	233	.....	2,886	6,628	.....	.....	.....
42 Bertie	184	17	7,250	10,858	408	.....	.....
43 Beverly	203	244	10,109	9,048	85	.....	3,157
44 Bexley	50	6	520	2,958	.....	.....	.....
45 Biddulph	36	85	4,462	5,774	259	.....	.....
46 Billings	.....	5	.....	608	.....	.....	.....
47 Binbrook	51	160	3,434	3,051	.....	.....	.....
48 Blandford	384	20	2,980	3,279	3,845	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
603	.....	.....	1,500	49	.....	51	21,344	9,706	14	.....	1
94	.....	.....	2,700	87	.....	139	14,500	65	2,328	.....	2
.....	.....	.....	.....	33	.....	65	8,171	968	3,101	.....	3
.....	.....	.....	265	29	.....	102	3,974	819	.....	.....	4
35	.....	.....	600	145	.....	120	5,589	1,167	1,680	560	5
100	.....	.....	1,200	32	.....	.....	6,108	587	1,229	.....	6
133	.....	.....	2,700	148	.....	34	17,167	1,437	.....	.....	7
.....	3,815	449	26,266	2,492	97	1,135	66,980	6,562	7,149	19,027	8
.....	.....	.....	1,700	42	.....	65	14,072	11	5,496	.....	9
44	.....	.....	.....	5	.....	10	1,712	256	680	.....	10
103	.....	.....	.....	65	.....	49	6,445	73	652	.....	11
.....	.....	.....	500	10	.....	61	5,100	675	111	.....	12
216	.....	1,094	.....	660	.....	133	13,460	2,997	155	.....	13
.....	766	.....	6,943	331	.....	45	37,347	.....	2,377	.....	14
.....	.....	15,000	2,364	504	.....	13	32,486	.....	2,599	.....	15
.....	.....	.....	.....	13	.....	29	6,613	375	1,909	.....	16
.....	.....	128	1,100	66	.....	291	32,444	487	4,384	.....	17
.....	1,407	1,184	7,349	768	.....	272	24,083	.....	11,063	.....	18
.....	.....	.....	.....	.....	.....	3	1,100	154	678	.....	19
.....	.....	.....	400	13	.....	20	4,275	781	2,765	.....	20
256	.....	.....	400	72	.....	67	15,084	1,379	.....	.....	21
706	89	251	3,167	843	.....	178	24,882	1,369	2,801	3,313	22
217	.....	.....	4,100	143	.....	215	24,840	68	537	.....	23
.....	.....	.....	100	1	.....	117	15,875	1,379	555	.....	24
140	.....	.....	4,213	184	.....	19	15,955	52	186	.....	25
.....	.....	.....	.....	.....	.....	57	5,850	516	505	.....	26
.....	.....	.....	.....	.....	.....	22	7,224	2,366	11	.....	27
36	.....	446	3,458	615	.....	.....	6,299	.....	2,418	.....	28
.....	.....	.....	1,650	356	.....	400	23,371	2,580	5,847	2,055	29
.....	.....	.....	.....	.....	.....	19	4,014	728	660	.....	30
152	.....	.....	2,025	120	.....	185	11,065	78	4,900	.....	31
124	.....	.....	113	64	.....	8	2,918	.....	6,227	.....	32
.....	.....	.....	.....	.....	.....	5	1,720	222	234	.....	33
.....	.....	.....	.....	723	.....	671	77,413	6,838	2,767	3,604	34
.....	.....	.....	1,879	114	.....	157	18,795	.....	68	.....	35
.....	.....	.....	2,329	67	.....	29	13,212	658	548	.....	36
.....	225	2,092	15,000	1,144	.....	306	43,386	4,555	5,042	.....	37
.....	.....	.....	.....	.....	.....	21	8,984	992	386	.....	38
72	.....	.....	.....	13	.....	14	6,614	996	562	.....	39
458	.....	.....	500	164	.....	545	9,326	500	4,013	.....	40
114	.....	.....	4,000	144	.....	398	19,105	3,058	76	.....	41
.....	280	.....	10,000	413	.....	95	39,541	3,490	5,712	.....	42
.....	.....	146	.....	117	.....	484	28,342	5,971	7,091	.....	43
.....	.....	.....	.....	.....	.....	113	4,865	157	946	.....	44
.....	.....	.....	2,000	59	.....	50	17,087	273	1	.....	45
.....	.....	.....	1,032	24	.....	141	3,820	285	803	.....	46
.....	.....	.....	1,700	85	.....	118	12,102	168	417	.....	47
558	1,325	.....	.....	589	.....	91	18,812	4,632	91	.....	48

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
1 Adelaide	.....	1,500	1,717	12,937
2 Adjala	.....	.....	646	3,039
3 Admaston	.....	650	450	5,169
4 Adolphustown	3,265	950	.....	5,034
5 Albemarle	.....	327	2,969	6,703
6 Alberton	.....	.....	100	1,916
7 Albion	.....	1,000	1,872	4,309
8 Aldborough	100	950	3,424	37,212
9 Alfred	.....	2,500	300	8,307
10 Algoma South	.....	.....	45	981
11 Alice and Fraser	.....	.....	1,197	1,922
12 Alnwick	28	1,240	.....	2,054
13 Amabel	.....	290	2,647	6,089
14 Amaranth	7,965	1,000	.....	11,342
15 Ameliasburg	25,805	5,500	13	33,917
16 Amherst Island	.....	1,200	.....	3,484
17 Ancaster	27,550	5,315	1,134	38,870
18 Anderdon	.....	600	319	11,982
19 Anson and Hindon	.....	.....	113	945
20 Armour	.....	275	120	3,941
21 Arran	.....	800	1,090	3,269
22 Artemesia	1,350	1,900	6,638	17,371
23 Arthur	.....	1,000	1,669	3,274
24 Ashfield	.....	100	.....	2,034
25 Asphodel	.....	3,200	1,199	4,637
26 Assiginack	.....	700	.....	1,721
27 Athol	1,428	1,300	.....	5,105
28 Atwood and Curran	3	700	1,525	4,646
29 Augusta	17,563	3,000	.....	31,045
30 Bagot and Blythfield	.....	1,000	.....	2,388
31 Balfour	.....	1,576	1,848	8,402
32 Bangor, Wicklow and McClure	.....	200	1,236	7,663
33 Barrie	.....	300	.....	756
34 Barton	14,632	2,225	*39,261	69,327
35 Bastard and Burgess S.	12,050	2,500	.....	14,618
36 Bathurst	.....	750	1,327	3,283
37 Bayham	.....	2,250	776	12,623
38 Beckwith	8,336	1,390	.....	11,104
39 Bedford	.....	500	160	2,218
40 Belmont and Methuen	.....	700	2,274	7,487
41 Bentinck	.....	400	814	4,348
42 Bertie	.....	5,100	858	15,160
43 Beverly	14,086	4,000	1,677	32,825
44 Bexley	.....	.....	255	1,358
45 Biddulph	.....	1,300	300	1,874
46 Billings	.....	250	.....	1,338
47 Binbrook	.....	450	.....	1,035
48 Blandford	.....	1,450	5,650	11,823

* Chiefly advances for local improvements.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
6,283	34	.....	1,297	.....	.....	.....	.....	.....	7,614	1
1,623	509	.....	646	.....	.....	375	.....	95	3,248	2
560	1,162	.....	.....	.....	.....	.....	.....	140	1,862	3
.....	.....	.....	.....	.....	.....	265	.....	.....	265	4
.....	914	.....	2,807	.....	.....	.....	76	53	3,850	5
.....	.....	.....	100	.....	.....	.....	.....	.....	100	6
.....	.....	.....	1,872	.....	.....	.....	.....	.....	1,872	7
5,202	.....	7,000	19,600	14,970	3,788	9,599	1,175	914	62,248	8
2,024	4,211	.....	.....	.....	.....	.....	.....	60	6,295	9
361	304	.....	45	.....	.....	.....	.....	.....	710	10
327	90	.....	1,197	.....	.....	.....	.....	4	1,618	11
.....	.....	.....	.....	.....	.....	.....	.....	10	10	12
.....	.....	13,215	746	.....	857	.....	.....	.....	14,818	13
.....	451	.....	.....	6,720	7,800	6,546	.....	900	22,417	14
.....	.....	.....	.....	.....	.....	1,936	.....	85	2,021	15
.....	24	.....	.....	.....	.....	200	.....	16	240	16
.....	.....	.....	.....	.....	1,134	.....	.....	20	1,154	17
1,837	570	.....	.....	5,131	4,608	5,996	.....	1,194	19,336	18
.....	776	.....	.....	.....	.....	.....	.....	.....	776	19
.....	1,866	.....	.....	.....	.....	.....	.....	646	2,512	20
.....	.....	.....	1,090	.....	.....	.....	.....	.....	1,090	21
.....	.....	.....	9,921	897	3,861	.....	.....	1,128	15,807	22
.....	.....	.....	1,669	.....	.....	.....	.....	149	1,818	23
.....	.....	.....	.....	.....	.....	.....	.....	95	95	24
.....	.....	.....	1,199	.....	.....	.....	.....	.....	1,199	25
.....	1,003	.....	.....	.....	.....	.....	.....	42	1,045	26
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27
.....	475	.....	598	.....	6,097	1,384	.....	.....	8,554	28
.....	.....	.....	.....	3,200	.....	6,950	.....	338	10,488	29
.....	13	.....	.....	.....	.....	.....	.....	60	73	30
.....	1,685	.....	1,848	.....	.....	2,400	.....	289	6,222	31
300	3,249	.....	1,236	.....	.....	880	.....	325	5,990	32
258	145	.....	.....	.....	.....	.....	.....	61	464	33
.....	1,282	.....	13,900	.....	44,761	.....	1,045	300	61,288	34
.....	.....	.....	.....	.....	.....	1,366	.....	300	1,666	35
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36
.....	.....	14,238	.....	1,698	315	8,000	.....	.....	24,251	37
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	38
.....	.....	.....	138	.....	.....	.....	.....	38	176	39
1,188	978	.....	2,274	.....	.....	.....	.....	500	4,940	40
.....	28	.....	814	.....	.....	.....	.....	200	1,042	41
.....	.....	.....	.....	1,670	.....	4,500	.....	2,115	8,285	42
10,109	.....	.....	.....	.....	1,465	.....	.....	18	11,592	43
.....	450	.....	.....	.....	.....	.....	.....	.....	450	44
.....	.....	.....	.....	.....	.....	.....	.....	533	533	45
.....	405	.....	.....	.....	.....	300	.....	26	731	46
.....	.....	.....	.....	.....	.....	450	.....	.....	450	47
.....	.....	.....	5,432	11,439	.....	1,005	.....	1,384	19,260	48

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities and Counties in which located.	Receipts, 1909.						
	Balance from 1908	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$
49 Blanshard, Perth	1 440	20,801	.....	4	13	.....	8,718
50 Blenheim, Oxford	4,391	31,063	215	785	75	.....	1,974
51 Blezard, Sudbury	256	820	49	.....	.....	.....	4,341
52 Bonfield, Nipissing	2,322	3,422	.....	.....	.....	.....	.....
53 Bosanquet, Lambton	422	20,741	47	.....	14	184	9,819
54 Brant, Bruce	454	19,035	210	3	149	.....	4,950
55 Brantford, Brant	4,683	37,792	452	5	3,272	.....	.....
56 Brighton, Northumberland	.....	14,660	.....	.....	.....	.....	11,557
57 Brock, Ontario	344	22,882	124	188	.....	.....	7,500
58 Bromley, Renfrew	833	10,587	128	4	51	.....	3,536
59 Brooke, Lambton	634	39,904	58	2	108	.....	8,000
60 Brougham, Renfrew	114	739	.....	5	.....	.....	.....
61 Bruce, Bruce	2,443	16,855	.....	9	64	.....	.....
62 Brudenell & Lyndoch, Renfrew	350	2,420	105	4	.....	.....	.....
63 Brunell, Muskoka	283	2,684	.....	.....	15	.....	.....
64 Bucke, Nipissing	609	3,973	.....	67	.....	.....	596
65 Burford, Brant	3,471	29,696	122	4	72	.....	.....
66 Burgess, N. Lanark	422	3,521	.....	4	9	.....	.....
67 Burleigh & Anstruther, Peterboro.	462	2,153	.....	6	.....	.....	.....
68 Burpee, Manitoulin	64	1,079	.....	.....	.....	.....	.....
69 Caistor, Lincoln	.....	9,186	.....	12	26	.....	1,916
70 Caldwell, Nipissing	169	5,410	71	.....	.....	.....	4,100
71 Caledon, Peel	1,301	20,951	271	35	23	.....	3,000
72 Caledonia, Prescott	823	9,978	210	.....	.....	.....	.....
73 Calvin, Nipissing	990	1,314	.....	.....	.....	.....	.....
74 Cambridge, Russell	1,849	13,935	100	.....	.....	.....	3,000
75 Camden, Kent	.....	22,183	.....	16	25	.....	2,420
76 Camden E., Lennox & Addington	461	24,568	330	10	6	.....	9,764
77 Cameron, Nipissing	11	599	.....	.....	.....	.....	200
78 Canborough, Haldimand	420	5,626	11	.....	3	.....	600
79 Caradoc, Middlesex	4,040	22,841	.....	39	100	.....	.....
80 Carden, Victoria	82	3,258	.....	.....	.....	.....	125
81 Cardiff, Haliburton	.....	2,087	.....	.....	.....	.....	.....
82 Cardwell, Muskoka	1,658	1,485	.....	.....	.....	.....	.....
83 Carling, Parry Sound	248	1,241	2	4	.....	.....	800
84 Carlow, Hastings	574	1,003	.....	.....	.....	.....	.....
85 Carnarvon, Manitoulin	8	2,356	39	6	17	.....	1,050
86 Carrick, Bruce	2,132	21,090	348	16	437	7,363	600
87 Cartwright, Durham	943	9,798	.....	21	.....	.....	3,000
88 Casey, Nipissing	.....	.....	.....	.....	.....	.....	73
89 Casimir, Jen. & Appy., Sudbury	33	1,844	.....	13	.....	.....	1,200
90 Cavan, Durham	2,378	20,590	.....	4	.....	.....	3,400
91 Cayuga N., Haldimand	176	9,343	25	.....	.....	.....	400
92 Cayuga S., Haldimand	421	3,731	.....	.....	3	.....	.....
93 Chaffey, Muskoka	537	3,478	29	.....	.....	.....	.....
94 Chamberlain, Nipissing	199	810	.....	.....	.....	.....	.....
95 Chandos, Peterboro'	169	2,509	.....	.....	.....	.....	.....
96 Chapleau, Sudbury	220	4,259	246	73	416	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	485	*2,977	34,438	1,034	433	808	9,778	.....	49
2,000	934	.....	.....	405	703	42,545	1,307	108	560	5,400	.....	50
.....	.....	.....	.....	.....	1,600	7,066	124	65	46	2,003	.....	51
.....	.....	.....	.....	.....	96	5,840	364	.....	173	370	.....	52
.....	645	.....	.....	.....	429	32,301	958	50	256	5,667	.....	53
2,000	.....	.....	50	504	318	27,673	876	30	209	4,777	.....	54
2,800	.....	.....	115	.....	469	49,588	2,589	439	1,118	13,109	.....	55
.....	.....	.....	.....	10	408	26,635	648	.....	286	2,395	.....	56
.....	.....	.....	.....	.....	269	31,307	1,155	50	570	5,897	.....	57
.....	9,891	.....	.....	.....	1,122	26,152	408	.....	120	991	.....	58
.....	966	.....	9	.....	446	50,127	859	97	247	10,758	.....	59
.....	.....	.....	.....	.....	11	869	209	.....	44	29	.....	60
.....	.....	.....	.....	756	554	20,681	794	12	433	4,151	.....	61
.....	.....	.....	.....	.....	50	2,929	219	.....	90	194	.....	62
.....	.....	.....	.....	.....	68	3,050	287	.....	84	369	.....	63
.....	.....	.....	.....	.....	1,388	6,633	858	214	180	986	.....	64
.....	1,101	.....	5	.....	226	34,697	984	510	445	5,959	50	65
.....	.....	.....	.....	.....	33	4,009	223	.....	74	75	.....	66
.....	.....	.....	.....	.....	442	3,063	352	.....	144	324	167	67
.....	.....	.....	.....	.....	13	1,156	121	.....	47	29	.....	68
.....	.....	.....	.....	.....	33	11,173	334	1	145	3,061	.....	69
.....	.....	.....	.....	.....	†2,563	12,313	473	1	159	4,124	.....	70
.....	.....	.....	.....	93	154	25,828	1,247	149	401	3,925	.....	71
.....	.....	.....	.....	.....	103	11,114	540	183	119	795	.....	72
.....	.....	.....	.....	.....	50	2,354	192	.....	46	108	.....	73
.....	.....	.....	.....	.....	248	19,132	1,100	212	218	3,095	.....	74
4,000	2,758	.....	.....	.....	‡2,596	33,998	796	49	197	4,594	100	75
.....	.....	.....	.....	.....	854	35,933	982	5	362	5,422	.....	76
.....	.....	.....	.....	.....	39	849	177	.....	8	.....	.....	77
.....	.....	.....	.....	.....	94	6,754	286	78	126	1,008	.....	78
.....	3,057	.....	74	.....	494	30,645	1,162	32	409	5,078	.....	79
.....	.....	.....	.....	.....	283	3,748	235	.....	73	222	.....	80
300	.....	.....	.....	.....	41	2,428	237	5	84	171	.....	81
.....	.....	.....	.....	.....	103	3,246	259	.....	47	167	.....	82
.....	.....	.....	.....	.....	57	2,352	121	.....	73	326	33	83
.....	.....	.....	.....	263	122	1,962	210	4	91	376	.....	84
.....	.....	.....	.....	.....	1,560	5,036	185	.....	48	1,883	.....	85
.....	.....	.....	.....	472	332	32,790	606	139	447	2,271	.....	86
.....	.....	.....	.....	.....	82	13,844	456	.....	104	1,850	.....	87
.....	.....	.....	.....	.....	.....	73	50	.....	23	.....	.....	88
.....	.....	.....	.....	.....	.....	3,090	524	.....	102	55	.....	89
700	7,118	.....	.....	.....	561	34,751	1,322	.....	195	6,081	.....	90
.....	.....	.....	.....	.....	88	10,032	491	370	146	1,119	.....	91
.....	.....	.....	.....	.....	55	4,210	161	.....	96	419	.....	92
.....	.....	.....	.....	.....	18	4,062	415	.....	75	563	.....	93
.....	.....	.....	.....	.....	.....	1,009	105	.....	29	65	.....	94
.....	.....	.....	.....	.....	41	2,719	366	.....	107	276	.....	95
.....	.....	31,000	2	.....	‖3,130	39,346	794	.....	439	582	19,028	96

* Including $1,603 Government Grant for Good Roads.
† Including $2,466 Government Grant for Colonization Roads.
‡ Including $1,500 Government Grant for Good Roads.
‖ Including $3,000 deposits from contractors.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.—*Continued.*						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
49 Blanshard	66	303	5,279	6,313	903	.....	.....
50 Blenheim	328	55	7,520	15,730	240	.....	.....
51 Blezard	.....	.....	.....	275	.....	.....	.....
52 Bonfield	8	25	.....	2,177	.....	.....	.....
53 Bosanquet	47	282	3,689	7,426	1,814	18	.....
54 Brant	334	51	6,581	10,126	.....	.....	90
55 Brantford	120	892	5,783	18,449	133	.....	.....
56 Brighton	75	129	2,894	6,089	.....	.....	.....
57 Brock	108	185	5,512	8,200	.....	.....	.....
58 Bromley	9	.....	2,159	4,526	10,490	.....	.....
59 Brooke	38	248	4,997	10,060	10,808	.....	.....
60 Brougham	.....	.....	.....	407	.....	.....	.....
61 Bruce	131	64	4,996	6,685	30	103	.....
62 Brudenell and Lyndoch	.....	65	168	1,944	.....	.....	.....
63 Brunell	5	47	.....	1,512	.....	.....	.....
64 Bucke	358	95	.....	1,643	.....	.....	.....
65 Burford	109	996	4,904	12,327	2,674	.....	.....
66 Burgess N.	.....	.....	1,243	1,773	56	.....	.....
67 Burleigh and Anstruther	50	.....	410	1,181	.....	.....	.....
68 Burpee	.....	.....	.....	706	.....	.....	.....
69 Calstor	55	18	1,717	4,347	.....	.....	.....
70 Caldwell	6	30	.....	2,485	242	.....	.....
71 Caledon	63	108	4,787	10,032	.....	.....	208
72 Caledonia	10	44	1,809	5,588	356	.....	.....
73 Calvin	.....	5	.....	800	.....	.....	.....
74 Cambridge	40	16	1,317	6,490	287	.....	.....
75 Camden	10	455	2,009	10,691	4,580	.....	.....
76 Camden East	52	419	7,054	10,591	118	.....	.....
77 Cameron	.....	.....	.....	376	.....	.....	.....
78 Canborough	1	212	1,573	2,400	.....	.....	.....
79 Caradoc	106	5	7,916	7,994	2,575	.....	.....
80 Carden	1	5	530	1,934	.....	16	.....
81 Cardiff	30	.....	185	1,365	.....	.....	.....
82 Cardwell	25	5	.....	1,066	.....	.....	.....
83 Carling	.....	.....	.....	675	.....	.....	.....
84 Carlow	.....	10	293	438	.....	.....	.....
85 Carnarvon	.....	50	.....	1,216	.....	.....	.....
86 Carrick	709	25	6,192	10,867	21	292	163
87 Cartwright	69	86	2,555	3,891	.....	.....	.....
88 Casey	.....	.....	.....	.....	.....	.....	.....
89 Casimir, Jennings and Appleby	.....	.....	.....	1,162	.....	.....	.....
90 Cavan	175	171	4,266	8,396	294	.....	.....
91 Cayuga N.	40	20	1,688	4,582	.....	.....	.....
92 Cayuga S.	2	5	1,351	1,442	.....	.....	.....
93 Chaffey	25	32	.....	1,922	.....	.....	.....
94 Chamberlain	.....	.....	.....	324	.....	.....	.....
95 Chandos	12	5	255	1,452	.....	.....	.....
96 Chapleau	.....	182	.....	3,200	17	.....	3,000

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
141	.....	.....	8,695	228	.....	457	34,438	.....	296	.....	49
941	357	.....	1,974	593	.....	905	36,018	6,527	98	.....	50
.....	.....	.....	4,379	60	.....	29	6,981	85	4,579	.....	51
206	.....	.....	.....	79	.....	36	3,438	2,402	944	.....	52
175	2,066	.....	8,832	496	.....	166	31,942	359	831	.....	53
278	.....	.....	.....	91	.....	102	23,545	4,128	1,983	.....	54
653	237	.....	.....	455	.....	438	44,415	5,173	851	.....	55
.....	.....	.....	13,506	122	.....	491	26,635	.....	1,857	.....	56
184	.....	540	7,500	387	.....	169	30,457	850	40	.....	57
58	455	.....	3,536	464	.....	210	23,426	2,726	4,779	.....	58
107	7,021	1,406	.....	1,463	.....	274	48,383	1,744	12,617	.....	59
.....	.....	.....	.....	.....	.....	1	690	179	100	.....	60
259	.....	.....	.....	133	.....	107	17,898	2,783	64	961	61
.....	.....	.....	.....	.....	.....	6	2,686	243	1,023	.....	62
200	.....	.....	.....	82	.....	17	2,603	447	1,638	.....	63
91	.....	.....	538	197	.....	109	5,269	1,364	5,025	.....	64
317	1,615	.....	.....	436	.....	644	31,970	2,727	1,556	.....	65
.....	.....	.....	.....	.....	.....	30	3,474	535	117	.....	66
.....	.....	284	.....	44	.....	36	2,992	71	243	.....	67
.....	.....	181	.....	59	.....	1	1,124	32	985	.....	68
.....	.....	.....	1,336	40	.....	119	11,173	.....	393	.....	69
64	.....	.....	3,400	95	.....	128	11,207	1,106	4,185	.....	70
.....	.....	.....	3,000	62	.....	322	24,304	1,524	193	.....	71
88	.....	.....	.....	50	.....	191	9,773	1,341	4,191	.....	72
293	.....	.....	.....	69	.....	81	1,594	760	862	.....	73
46	423	984	3,000	374	.....	65	17,667	1,465	7,044	.....	74
659	4,372	344	3,742	1,017	.....	374	33,989	9	10,320	.....	75
.....	.....	.....	9,764	208	.....	806	35,783	150	1,204	.....	76
.....	.....	.....	241	10	.....	.....	812	37	438	.....	77
.....	.....	.....	600	18	.....	111	6,413	341	26	.....	78
248	1,152	.....	.....	256	.....	708	27,641	3,004	6,332	.....	79
105	.....	.....	475	49	.....	2	3,647	101	331	216	80
99	.....	.....	126	26	.....	10	2,338	90	2,005	.....	81
.....	.....	.....	.....	.....	.....	.....	1,569	1,677	800	.....	82
64	.....	.....	950	29	.....	.....	2,271	81	2,419	.....	83
287	.....	.....	.....	76	.....	1	1,786	176	1,344	.....	84
34	.....	.....	700	29	.....	71	4,216	820	2,476	.....	85
3,200	.....	4,000	628	607	.....	141	30,308	2,482	7	292	86
433	.....	230	3,000	208	.....	217	13,099	745	62	.....	87
.....	.....	.....	.....	.....	.....	.....	73	.....	1,590	.....	88
.....	.....	.....	1,000	38	.....	2	2,883	207	2,312	.....	89
146	207	.....	9,800	860	.....	243	32,156	2,595	725	.....	90
.....	.....	.....	900	31	.....	53	9,440	592	489	.....	91
.....	.....	.....	.....	.....	.....	34	3,510	700	407	.....	92
.....	.....	.....	.....	.....	.....	111	3,143	919	2,659	.....	93
.....	.....	.....	.....	.....	.....	.....	523	486	968	.....	94
125	.....	.....	.....	40	.....	78	2,716	3	1,414	.....	95
186	.....	.....	.....	252	.....	.....	27,680	11,666	1,000	.....	96

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
49 Blanshard	.....	1,400	2,892	4,588
50 Blenheim	.....	1,170	9,895	17,690
51 Blezard	.....	.....	.....	4,664
52 Bonfield	.....	1,578	1,117	6,041
53 Bosanquet	.....	1,120	110	2,420
54 Brant	5,011	.....	3,997	15,119
55 Brantford	68,742	.....	6,852	81,618
56 Brighton	.....	900	700	3,457
57 Brock	.....	11,200	459	12,549
58 Bromley	.....	665	1,086	9,256
59 Brooke	.....	.....	1,400	15,761
60 Brougham	.....	.....	.....	279
61 Bruce	.....	1,525	2,163	7,496
62 Brudenell and Lyndoch	.....	650	.....	1,916
63 Brunel	.....	900	1,200	4,185
64 Bucke	.....	900	3,172	10,461
65 Burford	.....	800	4,501	9,584
66 Burgess N.	.....	600	.....	1,252
67 Burleigh and Anstruther	.....	2,100	.....	2,414
68 Burpee	.....	104	.....	1,121
69 Caistor	.....	1,000	.....	1,393
70 Caldwell	.....	542	625	6,458
71 Caledon	306	2,000	40	4,063
72 Caledonia	.....	1,000	749	7,281
73 Calvin	.....	.....	857	2,479
74 Cambridge	.....	1,150	998	10,657
75 Camden	.....	2,500	10,796	23,625
76 Camden East	.....	4,750	60	6,164
77 Cameron	.....	.....	.....	475
78 Canborough	.....	298	.....	665
79 Caradoc	.....	2,800	2,238	14,374
80 Carden	.....	.....	404	1,052
81 Cardiff	.....	.....	711	2,806
82 Cardwell	.....	.....	.....	2,477
83 Carling	.....	200	218	2,918
84 Carlow	.....	70	1,362	2,952
85 Carnarvon	.....	205	221	3,722
86 Carrick	163	2,800	57	5,801
87 Cartwright	.....	2,000	.....	2,807
88 Casey	.....	.....	.....	1,590
89 Casimir, Jennings and Appleby	.....	.....	.....	2,519
90 Cavan	.....	5,710	2,381	11,411
91 Cayuga, N.	.....	22	24	1,127
92 Cayuga, S.	.....	1,200	.....	2,307
93 Chaffey	.....	.....	.....	3,578
94 Chamberlain	.....	15	10	1,479
95 Chandos	.....	567	.....	1,984
96 Chapleau	3,000	19,803	3,255	38,724

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	1,011	.....	.....	23	.....	1,693	2,727	49
.....	.....	.....	9,895	3,362	.....	.....	.....	.....	13,257	50
.....	908	.....	.....	.....	.....	1,000	.....	155	2,063	51
.....	1,445	.....	1,117	.....	.....	.....	.....	6	2,568	52
.....	145	.....	.....	4,168	.....	957	.....	740	6,010	53
.....	.....	.....	3,997	.....	.....	4,950	.....	100	9,047	54
.....	.....	.....	6,852	770	.....	.....	.....	3,326	10,948	55
.....	.....	.....	.....	.....	.....	1,424	.....	.....	1,424	56
.....	132	.....	.....	.....	4,440	.....	.....	192	4,764	57
2,086	.....	.....	1,086	15,893	.....	.....	.....	.....	19,065	58
.....	.....	.....	106	18,720	3,355	8,055	.....	500	30,736	59
96	20	.....	.....	.....	.....	.....	.....	.....	116	60
.....	28	.....	3,068	.....	.....	.....	.....	32	3,128	61
352	.....	.....	.....	.....	.....	.....	.....	217	569	62
.....	1,129	.....	1,200	.....	.....	.....	.....	.....	2,329	63
.....	1,858	.....	2,026	.....	.....	1,494	.....	.....	5,378	64
.....	.....	.....	3,683	3,870	.....	.....	.....	929	8,482	65
.....	62	.....	.....	.....	.....	.....	.....	17	79	66
.....	530	.....	.....	.....	600	.....	.....	125	1,255	67
.....	275	.....	.....	.....	600	.....	.....	.....	875	68
.....	.....	.....	.....	.....	.....	616	.....	.....	616	69
.....	2,941	.....	475	.....	.....	1,528	.....	247	5,191	70
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	71
1,725	2,049	.....	749	.....	.....	.....	.....	.....	4,523	72
.....	532	.....	857	.....	.....	.....	.....	7	1,396	73
4,464	2,262	.....	768	2,057	660	.....	.....	98	10,309	74
400	1,422	.....	8,821	13,114	1,127	2,420	.....	1,637	28,941	75
2,300	.....	.....	.....	.....	.....	.....	.....	65	2,365	76
.....	94	.....	.....	.....	.....	.....	.....	12	106	77
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	78
.....	50	.....	.....	4,703	.....	.....	.....	.....	4,753	79
.....	.....	.....	620	.....	.....	.....	.....	49	669	80
402	691	.....	711	.....	.....	.....	.....	66	1,870	81
.....	597	.....	.....	.....	.....	.....	.....	265	862	82
.....	529	.....	218	.....	.....	400	.....	60	1,207	83
.....	1,300	.....	1,151	.....	.....	.....	.....	249	2,700	84
.....	1,337	.....	221	.....	.....	1,050	.....	201	2,809	85
.....	.....	.....	.....	.....	.....	.....	292	65	357	86
.....	.....	3,223	.....	.....	.....	.....	.....	.....	3,223	87
.....	174	.....	.....	.....	.....	73	.....	130	377	88
.....	1,688	.....	.....	.....	.....	200	.....	.....	1,888	89
.....	263	.....	1,523	12,938	.....	.....	.....	286	15,010	90
1,100	.....	.....	.....	.....	.....	.....	.....	.....	1,100	91
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	92
.....	.....	.....	.....	.....	.....	.....	.....	129	129	93
.....	267	.....	.....	.....	.....	.....	.....	184	451	94
.....	1,267	.....	567	.....	.....	.....	.....	.....	1,834	95
.....	.....	.....	3,255	.....	31,000	.....	.....	.....	34,255	96

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities and Counties in which located.	Receipts, 1909.						
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$
97 Chapman, Parry Sound	1,933	3,391	51	30	23	.....	.....
98 Chapple, Rainy River	657	6 670	54	.....	8	181	3,000
99 Charlottenburg, Glengarry	.....	31,016	338	.....	.....	.....	3,706
100 Charlotteville, Norfolk	.....	13,401	56	11	412	830	956
101 Chatham, Kent	.....	59,763	.....	.....	725	.....	22,756
102 Chinguacousy, Peel	.....	28,264	.....	8	1,555	7,915	1,500
103 Christie, Parry Sound	1,280	1,466	115	7	.....	.....	.....
104 Clarence, Russell	1,980	20,206	300	.....	.....	.....	4,900
105 Clarendon and Miller, Frontenac	687	2,332	.....	.....	.....	.....	.....
106 Clarke, Durham	3	21,036	.....	72	.....	.....	975
107 Clinton, Lincoln	837	17,982	.....	.....	.....	.....	5,932
108 Cockburn Island, Manitoulin	258	1,448	.....	24	15	300	.....
109 Colborne, Huron	1,137	10,740	107	.....	5	.....	1,800
110 Colchester, N. Essex	.....	19,897	.....	.....	222	.....	.....
111 Colchester, S. Essex	4,469	23,692	194	57	91	.....	200
112 Coleman, Nipissing	9,157	34,255	80	13	.....	.....	36,500
113 Collingwood, Grey	1,411	19,214	.....	.....	.....	.....	9,282
114 Cornwall, Stormont	7,879	33,074	261	.....	219	.....	76,710
115 Cramahe, Northumberland	.....	12,541	.....	70	.....	.....	3,937
116 Crosby, N. Leeds	286	5,755	.....	.....	.....	.....	.....
117 Crosby, S. Leeds	1,167	8,611	96	33	83	.....	922
118 Crowland, Welland	1,254	7,567	57	434	32	.....	200
119 Culross, Bruce	1,711	14,773	53	12	28	.....	.....
120 Cumberland, Russell	1,039	19,335	163	.....	.....	.....	983
121 Dack, Nipissing	.....	2,163	40	.....	.....	.....	683
122 Dalhousie, Sherbrooke, N. Lanark	66	6,624	.....	2	.....	.....	207
123 Dalton, Victoria	356	2,103	.....	.....	.....	.....	121
124 Darling, Lanark	192	1,984	.....	8	16	.....	125
125 Darlington, Durham	2,964	23,183	.....	4	43	.....	1,974
126 Dawn, Lambton	53	30,367	.....	41	112	.....	.....
127 Day and Bright Addl., Algoma	692	1,843	.....	.....	.....	.....	.....
128 Delaware, Middlesex	2,810	10,205	42	13	17	56	5,300
129 Denbigh, Ab. & Ash., Len. & Add'n.	95	1,595	.....	1	.....	.....	.....
130 Derby, Grey	604	12,136	.....	19	8	.....	3,599
131 Dereham, Oxford	.....	36,463	.....	729	89	.....	16,494
132 Dilke, Rainy River	659	1,656	168	.....	.....	.....	1,173
133 Dorchester, N. Middlesexx	5,688	23,365	80	.....	128	.....	.....
134 Dorchester, S. Elgin	.....	18,303	.....	.....	25	.....	2,855
135 Douro, Peterborough	156	10,289	.....	4	12	.....	4,450
136 Dover, Kent	.....	33,973	368	4	19	.....	6,958
137 Downie, Perth	1,425	19,975	153	20	24	.....	9,688
138 Draper, Muskoka	494	3,345	56	.....	.....	.....	1,000
139 Drummond, Lanark	2,383	12,412	108	.....	.....	464	1,300
140 Drury, Denison & Graham, Sud	206	6,981	273	796	11	.....	1,000
141 Dumfries, N. Waterloo	255	14,630	24	.....	25	.....	1,600
142 Dumfries, S. Brant	3,226	18,821	100	64	28	.....	2,500
143 Dummer, Peterborough	710	8,376	.....	38	18	.....	200
144 Dungannon, Hastings	886	2,370	15	.....	.....	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	.....	251	5,679	261	70	126	1,052	.....	97
.....	.....	.....	.....	.....	*2,311	12,881	758	20	227	3,147	.....	98
.....	.....	.....	.....	.....	221	35,281	1,245	118	325	12,800	.....	99
.....	.....	.....	.....	.....	166	15,832	781	10	678	1,624	.....	100
500	800	.....	.....	150	†2,044	86,738	2,449	466	549	3,072	.....	101
2,600	.....	.....	.....	.....	406	42,248	1,132	23	315	6,082	.....	102
.....	.....	.....	.....	.....	119	2,987	254	1	55	833	.....	103
.....	.....	.....	.....	.....	316	27,702	816	18	254	4,218	.....	104
.....	.....	.....	.....	57	126	3,202	197	.....	60	154	.....	105
1,700	.....	.....	35	.....	199	24,020	997	.....	371	3,883	.....	106
.....	.....	.....	.....	.....	426	25,177	785	439	185	5,657	.....	107
.....	.....	.....	.....	.....	206	2,251	226	3	§3	446	.....	108
.....	.....	.....	.....	.....	233	14,022	546	5	246	2,622	.....	109
.....	16,798	1,190	335	.....	787	39,229	801	10	421	1,280	2,485	110
.....	1,313	.....	13	11	348	30,388	1,103	278	918	2,662	.....	111
.....	.....	.....	.....	.....	‡10,935	90,940	1,708	142	524	34,699	.....	112
.....	.....	.....	.....	.....	127	30,034	1,122	229	508	4,279	.....	113
.....	.....	.....	.....	60	1,210	119,413	991	69	658	6,464	.....	114
.....	.....	.....	.....	.....	58	16,606	741	37	170	2,444	.....	115
.....	.....	.....	.....	.....	323	6,364	447	2	122	563	.....	116
.....	.....	.....	.....	.....	145	11,057	502	.....	81	1,756	.....	117
.....	.....	.....	.....	.....	21	9,565	321	68	169	1,173	.....	118
.....	.....	.....	.....	713	314	17,604	671	32	155	2,025	.....	119
.....	4,986	.....	.....	.....	154	26,660	711	22	88	8,445	.....	120
.....	.....	.....	.....	.....	7	2,893	210	.....	88	769	73	121
.....	.....	.....	.....	.....	70	6,969	417	.....	116	585	.....	122
.....	.....	.....	.....	25	32	2,637	239	5	63	175	.....	123
.....	.....	.....	.....	.....	78	2,403	216	.....	31	177	.....	124
.....	.....	.....	.....	.....	163	28,331	694	25	293	4,281	.....	125
.....	19,319	.....	630	.....	1,901	52,423	1,165	72	387	2,354	.....	126
.....	.....	.....	.....	.....	.....	2,535	252	.....	42	188	.....	127
.....	.....	.....	.....	.....	317	18,760	500	47	263	4,891	.....	128
.....	.....	.....	.....	84	588	2,363	117	.....	64	146	115	129
.....	.....	.....	.....	.....	250	16,616	562	11	156	3,229	.....	130
.....	.....	.....	.....	760	673	55,208	1,757	2,490	526	8,622	.....	131
.....	.....	.....	.....	.....	.....	3,656	413	.....	62	1,589	.....	132
3,500	.....	.....	.....	.....	191	32,952	1,067	42	364	5,096	.....	133
2,000	.....	.....	.....	.....	549	23,732	815	32	221	5,273	.....	134
.....	.....	.....	.....	.....	710	15,621	493	.....	140	2,032	108	135
.....	11,026	.....	25	275	654	53,302	1,682	870	664	3,224	.....	136
.....	1,060	.....	.....	122	||2,286	34,753	831	76	304	13,342	1,481	137
300	.....	.....	.....	.....	370	5,565	466	10	110	2,037	.....	138
.....	4,137	.....	.....	.....	275	21,079	425	200	252	1,122	.....	139
.....	.....	.....	.....	.....	1,514	10,781	772	512	550	2,412	26	140
.....	.....	.....	.....	968	85	17,587	847	8	383	2,799	200	141
3,200	.....	.....	.....	.....	609	28,548	1,106	653	447	3,256	167	142
.....	.....	.....	.....	.....	66	9,408	525	.....	174	1,102	.....	143
2,137	.....	.....	.....	363	244	6,015	347	.....	92	678	.....	144

*Government Grant for roads. †Including $1,535 from other municipalities. ‡Including $8,792 Government Grant for roads. ||Including $1,450 Government Grant for Good Roads.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.—*Continued.*						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
97 Chapman	19	5	.....	2,465	.....	.....	.....
98 Chapple	29	18	.....	2,813	.....	83	.....
99 Charlottenburg	25	318	3,469	11,691	1,036	.....	.....
100 Charlotteville	251	103	2,939	7,522	376	.....	830
101 Chatham	96	792	4,703	14,155	16,502	.....	.....
102 Chinguacousy	85	100	9,800	13,177	.....	.....	7,850
103 Christie	5	43	.....	1,128	.....	.....	.....
104 Clarence	220	27	3,558	10,845	266	.....	.....
105 Clarendon and Miller	8	52	57	2,226	.....	.....	.....
106 Clarke	55	.....	5,300	12,223	.....	.....	.....
107 Clinton	65	27	4,205	6,678	.....	.....	.....
108 Cockburn Island	10	20	.....	665	.....	.....	.....
109 Colborne	9	153	2,532	4,536	.....	.....	.....
110 Colchester, North	30	322	1,561	4,896	12,124	.....	.....
111 Colchester, South	26	164	2,800	8,651	1,560	.....	.....
112 Coleman	223	1,313	.....	8,888	.....	.....	.....
113 Collingwood	85	241	3,103	9,158	.....	.....	.....
114 Cornwall	353	530	3,712	10,511	35,585	.....	.....
115 Cramahe	45	51	2,675	6,792	.....	.....	.....
116 Crosby, N.	.....	.....	1,101	2,888	.....	.....	.....
117 Crosby, S.	50	10	1,266	4,810	.....	.....	.....
118 Crowland	26	12	1,661	3,430	474	.....	.....
119 Culross	47	52	4,708	6,694	762	.....	.....
120 Cumberland	11	.....	3,000	6,855	1,454	.....	.....
121 Dack	13	.....	.....	513	.....	.....	.....
122 Dalhousie, Sherbrooke N.	.....	5	1,350	3,671	.....	.....	.....
123 Dalton	.....	175	258	1,352	.....	99	.....
124 Darling	187	14	259	1,196	.....	.....	.....
125 Darlington	14	164	6,073	10,742	.....	.....	.....
126 Dawn	30	743	5,870	7,881	16,858	.....	.....
127 Day and Bright Addl.	15	.....	.....	871	.....	.....	.....
128 Delaware	35	91	3,567	4,328	666	.....	5
129 Denbigh, Ab. and Ash.	.....	45	432	873	.....	.....	.....
130 Derby	150	202	1,908	4,264	.....	.....	121
131 Dereham	56	70	7,844	9,009	13,554	.....	.....
132 Dilke	.....	.....	.....	556	.....	.....	.....
133 Dorchester, N.	136	59	7,766	12,392	448	.....	.....
134 Dorchester, S.	55	46	3,537	7,133	5,629	.....	.....
135 Douro	34	25	3,105	4,292	.....	.....	.....
136 Dover	30	186	4,262	8,116	11,838	.....	19
137 Downie	128	170	3,640	5,413	433	.....	893
138 Draper	.....	115	.....	1,975	.....	.....	.....
139 Drummond	31	5	4,023	4,839	548	.....	362
140 Drury, Denison and Graham	169	65	.....	4,090	25	.....	.....
141 Dumfries, N.	190	26	3,919	5,512	.....	.....	.....
142 Dumfries, S.	110	425	3,877	11,305	132	.....	.....
143 Dummer	72	28	2,147	4,007	.....	.....	.....
144 Dungannon	.....	27	296	3,877	.....	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	.....	.....	17	4,015	1,664	1,166	.....	97
31	.....	.....	5,136	188	.....	236	12,686	195	5,567	319	98
821	.....	792	1,140	554	.....	947	35,281	.....	7,625	.....	99
.....	.....	.....	516	40	.....	162	15,832	.....	927	.....	100
1,015	14,303	863	21,124	5,357	.....	1,292	86,738	.....	47,530	.....	101
724	.....	.....	2,247	402	.....	311	42,248	.....	785	.....	102
.....	.....	.....	.....	.....	.....	28	2,347	640	1,333	.....	103
359	85	.....	3,450	643	.....	448	25,207	2,495	12,876	.....	104
.....	.....	.....	.....	.....	.....	2	2,756	446	929	.....	105
.....	.....	.....	975	21	.....	187	24,012	8	2,638	.....	106
112	.....	90	5,932	240	.....	264	24,679	498	982	.....	107
.....	.....	.....	.....	.....	.....	26	1,479	772	1,386	.....	108
.....	.....	.....	2,600	103	.....	.....	13,352	670	200	.....	109
86	5,526	194	5,040	2,274	.....	973	38,023	1,206	20,362	.....	110
178	5,172	224	1,366	2,303	.....	791	28,196	2,192	17,060	.....	111
.....	.....	.....	36,500	778	.....	*2,915	87,690	3,250	8,003	.....	112
165	.....	126	9,282	296	.....	370	28,964	1,070	140	.....	113
115	3,940	.....	44,379	4,780	.....	555	112,642	6,771	5,145	.....	114
200	.....	.....	2,917	107	.....	427	16,606	.....	5,356	.....	115
127	.....	448	.....	208	.....	13	5,919	445	2,259	.....	116
171	.....	.....	1,000	107	.....	129	9,882	1,175	166	.....	117
.....	.....	.....	200	66	.....	16	7,616	1,949	328	.....	118
107	.....	.....	.....	23	.....	3	15,279	2,325	5	.....	119
292	823	120	1,000	647	.....	†2,846	26,314	346	2,001	.....	120
.....	.....	.....	683	20	.....	100	2,469	424	1,804	.....	121
.....	.....	203	207	47	.....	66	6,667	302	518	.....	122
.....	.....	.....	.....	126	.....	28	2,520	117	534	99	123
.....	.....	.....	125	5	.....	61	2,271	132	.....	.....	124
174	.....	.....	1,974	288	.....	495	25,217	3,114	569	.....	125
444	7,880	126	2,500	1,179	.....	1,650	49,139	3,284	26,591	.....	126
.....	.....	.....	.....	.....	.....	.....	1,368	1,167	678	.....	127
.....	.....	.....	4,000	76	.....	52	18,521	239	7,560	.....	128
.....	.....	.....	300	10	.....	33	2,135	228	1,081	.....	129
83	514	.....	3,599	357	.....	386	15,542	1,074	22	.....	130
.....	2,949	.....	6,525	1,412	.....	394	55,208	.....	1,700	.....	131
.....	.....	.....	976	36	.....	21	3,653	3	839	.....	132
.....	475	.....	.....	144	.....	268	28,257	4,695	1,171	.....	133
.....	.....	.....	539	339	.....	113	23,732	.....	986	.....	134
57	129	.....	4,450	280	.....	109	15,254	367	246	.....	135
670	7,837	.....	10,094	3,703	.....	107	53,302	.....	15,798	.....	136
.....	359	.....	7,200	255	.....	228	34,753	.....	7	.....	137
50	.....	.....	500	19	.....	9	5,291	274	2,671	.....	138
.....	532	.....	5,223	677	.....	299	18,538	2,541	44	.....	139
106	.....	.....	1,000	42	.....	250	10,019	762	2,868	.....	140
.....	.....	2,160	1,000	116	.....	239	17,399	188	413	.....	141
389	.....	.....	2,720	257	.....	1,438	26,282	2,266	8	.....	142
.....	.....	.....	200	12	.....	320	8,587	821	492	.....	143
150	.....	.....	.....	57	.....	.....	5,524	491	3,177	.....	144

* Being Tax refund to Temiskaming and Hudson Bay Mining Companies.
† Including $2,772 to other municipalities as share of debt.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
97 Chapman	.....	90	.....	2,920
98 Chapple	.....	570	2,433	9,084
99 Charlottenburg	.....	1,640	2,002	10,667
100 Charlotteville	8,765	1,220	15	10,927
101 Chatham	.....	2,500	50,420	100,450
102 Chinguacousy	32,691	1,100	5,809	40,385
103 Christie	.....	943	.....	2,916
104 Clarence	.....	2,399	7,833	25,603
105 Clarendon and Miller	.....	.....	.....	1,375
106 Clarke	.....	6,350	1,700	10,696
107 Clinton	.....	1,300	2,562	5,342
108 Cockburn Island	.....	775	105	3,038
109 Colborne	.....	975	.....	1,845
110 Colchester, North	.....	3,785	8,263	33,616
111 Colchester, South	.....	3,275	3,789	26,316
112 Coleman	.....	1,940	250	13,443
113 Collingwood	.....	1,500	989	3,699
114 Cornwall	.....	7,100	57,929	76,945
115 Cramahe	.....	4,700	1,400	11,456
116 Crosby, N.	.....	500	3,930	7,134
117 Crosby, S.	4,216	1,400	1,466	8,423
118 Crowland	.....	700	.....	2,977
119 Culross	.....	250	548	3,128
120 Cumberland	158	4,750	1,514	8,769
121 Dack	.....	73	120	2,421
122 Dalhousie, Sherbrooke N.	.....	800	.....	1,620
123 Dalton	.....	.....	2,001	2,751
124 Darling	200	60	.....	392
125 Darlington	.....	625	5,833	10,141
126 Dawn	.....	1,550	30,828	62,253
127 Day and Bright Addl.	.....	.....	.....	1,845
128 Delaware	431	2,080	.....	10,310
129 Denbigh, Ab. and Ash.	.....	.....	.....	1,309
130 Derby	138	2,460	5,040	8,734
131 Dereham	.....	1,500	24,587	27,787
132 Dilke	.....	20	1,000	1,862
133 Dorchester, N.	.....	.....	3,500	9,366
134 Dorchester, S.	.....	1,105	6,398	8,489
135 Douro	.....	655	1,268	2,536
136 Dover	651	2,000	16,726	35,175
137 Downie	893	3,050	2,008	5,958
138 Draper	.....	500	396	3,841
139 Drummond	362	800	.....	3,747
140 Drury, Denison and Graham	.....	1,897	.....	5,527
141 Dumfries, N.	.....	1,000	.....	1,601
142 Dumfries, S.	.....	1,985	7,248	11,507
143 Dummer	.....	1,000	.....	2,313
144 Dungannon	.....	200	2,937	6,805

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
.....	1,143	.....	.....	.....	.....	.....	.....	46	1,189	97
.....	2,725	.....	1,711	.....	.....	122	.....	7	4,565	98
3,531	2,173	.....	2,002	.....	2,623	3,706	.....	3,171	17,206	99
.....	.....	.....	.....	.....	.....	956	.....	195	1,151	100
5,136	2,088	.....	3,261	54,313	3,903	22,756	.....	4,813	96,270	101
.....	.....	.....	5,809	.....	.....	242	.....	21	6,072	102
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	103
3,223	7,977	.....	6,972	732	.....	4,850	.....	345	24,099	104
413	.....	.....	.....	.....	.....	.....	.....	32	445	105
326	.....	.....	1,700	.....	.....	.....	.....	.....	2,026	106
888	.....	.....	2,010	.....	740	.....	.....	.....	3,638	107
.....	623	.....	.....	.....	.....	.....	.....	2	625	108
.....	.....	.....	.....	.....	.....	1,200	.....	60	1,260	109
1,446	5,277	.....	1,280	40,478	996	5,310	.....	5,387	60,174	110
.....	6,532	.....	1,001	32,182	1,012	5,795	.....	2,839	49,361	111
.....	9,762	.....	.....	.....	.....	.....	.....	300	10,062	112
.....	443	.....	546	.....	729	.....	.....	150	1,868	113
.....	531	.....	122	80,368	.....	68,110	.....	1,335	150,466	114
.....	.....	.....	1,400	.....	.....	2,677	.....	85	4,162	115
.....	650	471	3,930	.....	.....	.....	.....	68	5,119	116
.....	.....	.....	1,466	.....	.....	3,182	.....	.....	4,648	117
.....	1,595	.....	.....	.....	.....	1,400	.....	.....	2,995	118
.....	401	.....	473	.....	.....	.....	.....	.....	874	119
3,850	7,950	.....	1,514	10,863	1,493	1,000	.....	1,616	28,286	120
.....	1,053	.....	.....	.....	.....	.....	.....	83	1,136	121
.....	.....	.....	.....	.....	895	.....	.....	.....	895	122
.....	.....	.....	2,100	.....	.....	121	.....	127	2,348	123
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	124
.....	.....	.....	5,230	.....	.....	.....	.....	530	5,760	125
.....	8,689	.....	2,276	31,504	134	.....	.....	4,562	47,165	126
.....	835	.....	.....	.....	.....	.....	.....	14	849	127
3,195	.....	.....	.....	.....	.....	4,728	.....	831	8,754	128
.....	265	.....	.....	.....	.....	.....	.....	92	357	129
.....	.....	.....	207	5,203	.....	.....	.....	.....	5,410	130
.....	.....	.....	.....	9,977	.....	16,494	.....	1,424	27,895	131
.....	328	.....	.....	.....	.....	1,000	.....	51	1,379	132
.....	.....	.....	3,500	2,716	.....	.....	.....	925	7,141	133
3,537	.....	.....	2,000	.....	.....	2,855	.....	.....	8,392	134
391	.....	.....	1,236	2,674	.....	.....	.....	431	4,732	135
4,638	1,882	.....	1,234	61,354	.....	7,547	.....	5,986	82,641	136
.....	.....	.....	.....	3,936	.....	2,488	.....	315	6,739	137
.....	1,245	.....	350	.....	.....	513	.....	139	2,247	138
.....	.....	.....	.....	11,949	.....	1,000	.....	.....	12,949	139
.....	.....	.....	.....	.....	.....	.....	.....	53	53	140
.....	.....	.....	.....	.....	.....	600	.....	100	700	14
.....	.....	.....	7,098	.....	.....	220	.....	.....	7,318	14
.....	19	.....	.....	.....	.....	.....	.....	.....	19	14
.....	387	.....	2,937	.....	.....	.....	.....	204	3,528	14

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities and Counties in which located.	Receipts, 1909.						
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$
145 Dunn, Haldimand	.....	4,891	75	17	3	.....	100
146 Dunwich, Elgin	9,463	26,203	162	.....	41	.....	2,500
147 Dymond, Nipissing	.....	4,229	.....	4	6	.....	4,860
148 Dysart, Guilford, &c., Haliburton.	561	8,966	3	354	58	.....	5,200
149 Easthope, N. Perth	3,392	16,498	110	100	276	.....	.....
150 Easthope, S. Perth	4,438	10,265	155	1	16	.....	.....
151 Eastnor, Bruce	425	9,341	140	73	.....	.....	800
152 Edwardsburg, Grenville	.....	18,101	.....	43	621	492	6,566
153 Egremont, Grey	983	15,103	.....	.....	10	.....	5,500
154 Ekfrid, Middlesex	4,305	21,561	81	12	.....	.....	5,600
155 Elderslie, Bruce	945	14,862	.....	4	34	.....	800
156 Eldon, Victoria	2,871	15,623	15	.....	.....	.....	5,200
157 Elizabethtown, Leeds	.....	20,975	72	49	8	.....	6,706
158 Ellice, Perth	2,105	29,498	221	.....	45	.....	8,000
159 Elma, Perth	.....	35,748	228	42	282	.....	8,000
160 Elmsley, N. Lanark	1,804	5,727	10	1	.....	.....	300
161 Elmsley, S. Leeds	.....	4,666	57	4	.....	.....	900
162 Elzevir & Grimsthorpe, Hastings.	.....	5,827	72	40	.....	.....	1,655
163 Emily, Victoria	603	12,552	.....	.....	7	.....	3,150
164 Emo, Rainy River	979	8,672	134	10	.....	.....	1,800
165 Enniskillen, Lambton	7,514	43,790	.....	8	696	.....	.....
166 Ennismore, Peterborough	216	3,857	.....	.....	.....	.....	200
167 Eramosa, Wellington	93	17,760	153	18	11	343	2,133
168 Erin, Wellington	.....	18,968	.....	6	.....	.....	1,566
169 Ernestown, Lennox & Addington.	.....	25,881	101	22	1,334	230	5,000
170 Escott Front, Leeds	143	6,944	5	6	.....	.....	1,150
171 Esquesing, Halton	530	23,047	175	4	2,076	1,848	1,957
172 Essa, Simcoe	.....	24,192	210	8	.....	.....	4,035
173 Etobicoke, York	624	40,379	153	32	582	6,882	14,145
174 Euphemia, Lambton	.....	15,135	.....	100	40	.....	.....
175 Euphrasia, Grey	2,858	16,113	.....	3	.....	.....	4,500
176 Evanturel, Nipissing	320	2,455	.....	.....	.....	.....	500
177 Faraday, Hastings	43	3,294	.....	.....	.....	.....	.....
178 Fenelon, Victoria	463	11,977	.....	.....	.....	.....	1,000
179 Ferris, Nipissing	1,047	3,699	107	1	18	358	169
180 Finch, Stormont	.....	29,553	153	.....	337	.....	10,443
181 Fitzroy, Carleton	1,840	14,241	24	6	.....	.....	.....
182 Flamboro E., Wentworth	162	19,499	105	12	.....	.....	.....
183 Flamboro W., Wentworth	1,808	14,638	93	46	725	4,293	.....
184 Flos, Simcoe	3,517	24,234	385	13	131	2,500	1,500
185 Foley, Parry Sound	959	1,686	76	.....	10	.....	200
186 Fredericksburg N., Lennox & Addn.	743	9,590	.....	1	227	.....	2,500
187 Fredericksburg S., Lennox & Addn.	559	8,849	.....	.....	28	.....	.....
188 Fullarton, Perth	2,260	16,393	.....	37	5	.....	3,500
189 Gainsborough, Lincoln	560	10,971	.....	.....	.....	.....	1,050
190 Galway and Cavendish, Peterboro'.	699	1,553	.....	.....	3	.....	.....
191 Garafraxa E., Dufferin	2,106	10,602	.....	.....	25	.....	2,000
192 Garafraxa W., Wellington	418	16,686	.....	4	4	.....	5,091

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	.....	17	5,103	228	.....	58	395	.....	145
2,600	1,233	.....	.....	.....	876	43,078	1,134	387	411	7,523	.....	146
.....	.....	.....	.....	.....	*3,437	12,536	435	.....	139	4,955	.....	147
.....	.....	.....	.....	.....	89	15,231	463	687	300	6,596	.....	148
.....	16,161	.....	469	1,004	476	38,486	774	.....	161	3,247	.....	149
.....	1,427	.....	.....	267	509	17,078	548	2	169	2,199	.....	150
.....	.....	.....	.....	250	210	11,239	569	77	261	1,208	66	151
.....	.....	.....	.....	68	210	26,101	804	87	395	2,883	.....	152
.....	.....	.....	.....	.....	677	22,273	717	30	207	2,323	.....	153
.....	.....	.....	.....	.....	382	31,941	772	.....	400	4,028	.....	154
.....	.....	.....	.....	683	215	17,543	672	4	173	1,820	.....	155
.....	.....	.....	.....	.....	334	24,043	939	715	309	3,046	.....	156
.....	.....	.....	.....	.....	165	27,975	1,205	69	357	5,384	.....	157
.....	3,422	.....	.....	335	1,257	44,883	945	41	389	2,760	.....	158
.....	24,179	.....	.....	285	†6,131	74,895	1,117	36	376	4,232	.....	159
.....	.....	.....	.....	.....	94	7,936	295	.....	67	309	.....	160
.....	.....	.....	.....	.....	79	5,706	308	.....	56	1,393	.....	161
.....	.....	.....	.....	.....	707	8,301	489	.....	115	1,154	.....	162
.....	.....	.....	.....	.....	60	16,372	771	170	120	2,120	.....	163
.....	.....	.....	.....	.....	708	12,303	586	.....	223	3,845	.....	164
.....	2,288	.....	.....	.....	‡4,919	59,215	1,569	380	814	11,950	.....	165
.....	.....	.....	.....	.....	36	4,309	264	1	87	771	.....	166
.....	.....	.....	.....	.....	178	20,689	819	30	221	4,398	.....	167
.....	.....	.....	.....	.....	147	20,687	804	.....	272	2,203	.....	168
.....	.....	.....	.....	.....	104	32,672	832	2	264	2,522	.....	169
.....	.....	.....	.....	.....	97	8,345	479	246	220	554	.....	170
.....	.....	.....	.....	.....	243	29,880	1,222	5	456	3,419	.....	171
.....	.....	.....	.....	.....	284	28,729	1,064	28	146	3,527	.....	172
.....	.....	3,100	36	.....	779	66,712	2,113	323	816	20,336	.....	173
.....	15,229	.....	31	.....	2,244	32,779	812	153	289	6,828	.....	174
2,000	.....	.....	.....	.....	371	25,845	768	5	278	2,414	23	175
.....	.....	.....	.....	.....	1,931	5,206	466	50	99	3,134	.....	176
.....	.....	.....	.....	338	164	3,839	490	50	62	508	.....	177
.....	.....	.....	.....	.....	.....	13,440	556	.....	200	1,906	.....	178
1,800	.....	.....	.....	.....	77	7,276	672	122	216	678	.....	179
.....	4,339	2,500	78	.....	325	47,728	1,209	14	285	4,125	2,500	180
.....	.....	.....	.....	.....	326	16,437	576	48	189	2,501	390	181
.....	.....	.....	.....	.....	105	19,883	936	.....	250	3,314	.....	182
.....	.....	.....	.....	.....	304	21,907	1,016	.....	392	1,244	.....	183
5,900	.....	.....	.....	.....	371	37,651	1,358	9	580	3,196	115	184
.....	.....	.....	.....	.....	25	2,956	217	118	77	495	.....	185
.....	.....	.....	.....	.....	49	13,110	362	3	160	1,326	.....	186
2,000	.....	.....	.....	65	52	11,553	279	.....	58	1,862	.....	187
.....	.....	.....	.....	26	1,243	23,464	746	.....	221	5,085	.....	188
.....	.....	.....	.....	.....	323	12,904	632	20	280	885	.....	189
.....	.....	.....	.....	.....	65	2,320	291	.....	63	4	.....	190
.....	.....	.....	.....	150	69	14,952	581	.....	143	2,426	.....	191
.....	.....	.....	.....	.....	187	22,390	702	150	276	5,876	.....	192

* Including $3,406 Government Grant to Colonization Roads. † Including Government Grants for roads, $733; for drains, $750; and from other municipalities as shares of drains, $4,153. ‡ Including $1,000 Government Grant for drains, and $4,568 from other municipalities as share of drains. ‖ Including $2,131 from Mosa Tp. assessment *re* Haggarty drain.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
145 Dunn	4	82	1,629	2,355	.....	.....	.....
146 Dunwich	52	30	6,463	10,034	3,774	.....	.....
147 Dymond	25	.....	.....	1,485	.....	.....	.....
148 Dysart, Guilford, &c.	13	85	1,361	2,094	.....	.....	.....
149 Easthope, N.	10	108	4,740	5,157	12,422	.....	.....
150 Easthope, S.	142	33	2,614	3,542	604	.....	.....
151 Eastnor	176	19	823	4,628	253	.....	.....
152 Edwardsburg	73	80	6,430	11,399	283	.....	132
153 Egremont	573	66	3,258	6,556	99	.....	.....
154 Ekfrid	15	132	7,708	5,709	477	.....	.....
155 Eldersl.e	29	.....	4,693	5,315	.....	.....	.....
156 Eldon	204	10	3,780	7,038	927	.....	.....
157 Elizabethtown	21	10	3,603	10,958	127	.....	.....
158 Ellice	57	224	4,994	6,519	6,577	.....	.....
159 Elma	40	129	6,767	8,261	11,485	251	.....
160 Elmsley, N.	20	3	1,872	2,475	.....	.....	.....
161 Elmsley, S.	3	.....	890	2,186	.....	.....	.....
162 Elzevir and Grimsthorpe	294	11	1,092	2,797	.....	.....	.....
163 Emily	106	5	3,803	5,523	.....	.....	.....
164 Emo	.....	.....	.....	3,058	.....	.....	.....
165 Enniskillen	56	343	10,209	11,980	7,151	.....	.....
166 Ennismore	30	36	500	1,820	229	.....	.....
167 Eramosa	84	113	.....	5,951	.....	.....	103
168 Erin	35	47	5,874	8,858	.....	.....	.....
169 Ernestown	312	433	11,495	8,100	64	.....	180
170 Escott Front	11	28	952	3,408	.....	.....	36
171 Esquesing	56	510	9,506	10,500	.....	.....	1,574
172 Essa	126	210	.....	8,217	.....	.....	.....
173 Etobicoke	1,083	389	5,182	21,110	2,356	.....	350
174 Euphemia	8	182	2,236	3,895	11,980	.....	.....
175 Euphrasia	546	81	2,792	10,929	.....	.....	.....
176 Evanturel	11	.....	.....	722	.....	.....	.....
177 Faraday	.....	31	289	1,551	.....	.....	.....
178 Fenelon	48	5	2,966	5,982	.....	.....	.....
179 Ferris	107	.....	1,915	1,800	.....	.....	619
180 Finch	14	172	2,637	7,260	7,849	.....	.....
181 Fitzroy	26	161	1,900	7,432	.....	.....	.....
182 Flamboro E.	112	623	.....	6,182	.....	.....	.....
183 Flamboro W.	142	999	5,145	5,887	42	.....	4,414
184 Flos	45	326	6,903	12,858	272	333	.....
185 Foley	.....	214	.....	1,168	.....	.....	.....
186 Fredericksburg N.	60	196	2,715	3,248	.....	.....	.....
187 Fredericksburg S.	.....	25	3,578	5,203	.....	.....	.....
188 Fullarton	54	25	6,194	4,569	724	.....	.....
189 Gainsborough	64	46	3,755	5,766	.....	.....	.....
190 Galway and Cavendish	100	14	287	1,101	.....	.....	.....
191 Garafraxa E.	34	5	2,015	5,185	.....	.....	.....
192 Garafraxa W.	68	.....	4,928	5,882	155	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	126	6	.....	24	4,907	196	60	.....	145
427	1,887	.....	2,500	461	.....	512	35,595	7,483	2,292	.....	146
316	.....	.....	4,844	217	.....	120	12,536	.....	2,901	.....	147
68	.....	.....	3,000	222	.....	133	15,022	209	10,689	.....	148
.....	1,115	.....	.....	217	.....	148	28,099	10,387	142	.....	149
.....	1,495	.....	.....	533	.....	1,142	13,023	4,055	453	.....	150
70	442	122	800	387	.....	99	10,000	1,239	2,060	.....	151
.....	.....	.....	2,571	381	.....	583	26,101	.....	12,617	.....	152
579	361	93	5,500	738	.....	70	21,170	1,103	.....	.....	153
719	3,536	.....	4,000	634	.....	601	28,731	3,210	11,811	.....	154
444	.....	.....	800	229	.....	98	14,277	3,266	.....	.....	155
123	.....	.....	5,650	247	.....	197	23,185	858	2,809	.....	156
.....	.....	.....	6,125	102	.....	14	27,975	.....	6,763	.....	157
661	5,211	.....	8,000	2,474	.....	649	39,501	5,382	1,099	.....	158
744	5,387	600	9,313	3,316	106	384	52,544	22,351	461	1,186	159
.....	.....	.....	2,075	136	.....	36	7,288	648	110	.....	160
.....	.....	.....	828	27	.....	4	5,695	11	282	.....	161
265	.....	.....	2,005	63	.....	16	8,301	.....	2,027	.....	162
.....	.....	228	3,150	99	.....	16	16,111	261	.....	.....	163
81	.....	.....	2,000	92	.....	226	10,111	2,192	2,846	.....	164
669	8,280	.....	.....	1,852	.....	1,056	56,309	2,906	40,924	.....	165
.....	.....	.....	200	2	.....	40	3,980	329	696	.....	166
.....	.....	.....	2,133	71	.....	103	14,026	6,663	2,591	.....	167
320	.....	.....	1,541	35	.....	654	20,643	44	3,362	.....	168
.....	.....	.....	6,661	162	.....	480	31,507	1,165	3,142	.....	169
.....	.....	.....	2,050	77	.....	166	8,227	118	144	.....	170
.....	.....	.....	1,800	30	.....	334	29,412	468	1,346	.....	171
182	.....	.....	4,774	131	.....	452	18,857	9,872	75	.....	172
1,944	.....	1,116	6,624	2,469	.....	485	66,696	16	4,867	786	173
.....	607	1,396	737	325	.....	1,510	30,958	1,821	8,701	.....	174
163	.....	.....	4,500	203	.....	296	22,998	2,847	1,125	.....	175
.....	.....	.....	500	11	.....	2	4,995	211	1,801	.....	176
88	.....	.....	.....	34	.....	269	3,372	467	2,836	.....	177
423	.....	.....	1,000	34	.....	100	13,220	220	4,670	.....	178
212	.....	.....	619	166	.....	141	7,267	9	3,053	.....	179
99	6,053	2,250	10,200	3,055	.....	6	47,728	.....	2,937	.....	180
.....	.....	.....	1,000	.....	.....	94	14,317	2,120	5,325	.....	181
.....	.....	.....	.....	129	.....	166	11,712	8,171	1,739	.....	182
.....	407	.....	.....	63	.....	574	20,325	1,582	.....	.....	183
2,585	536	1,699	1,500	982	.....	37	33,334	4,317	2,897	.....	184
.....	.....	.....	200	4	.....	10	2,503	453	479	.....	185
.....	.....	.....	2,500	58	.....	18	10,646	2,464	1,938	.....	186
.....	.....	.....	.....	47	.....	3	11,055	498	1,994	.....	187
.....	.....	.....	4,500	111	.....	41	22,270	1,194	.....	.....	188
200	.....	.....	1,050	89	.....	100	12,887	17	2,036	.....	189
.....	.....	.....	.....	1	.....	.....	1,861	459	938	.....	190
.....	.....	593	2,000	59	.....	16	13,057	1,895	645	.....	191
147	.....	.....	4,000	110	.....	96	22,390	.....	2,171	.....	192

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
145 Dunn	.....	980	.....	1,236
146 Dunwich	.....	350	4,720	14,845
147 Dymond	.....	175	664	3,740
148 Dysart, Guilford, &c.	.....	2,500	459	13,857
149 Easthope, N.	.....	680	56	11,265
150 Easthope, S.	.....	110	26	4,644
151 Eastnor	100	2,425	280	6,104
152 Edwardsburg	18,009	.....	135	30,761
153 Egremont	.....	300	8,309	9,712
154 Elfrid	.....	800	2,457	18,278
155 Elderslie	.....	1,500	4,177	8,943
156 Eldon	.....	1,160	3,660	8,487
157 Elizabethtown	.....	2,315	50	9,128
158 Ellice	.....	600	41,554	48,635
159 Elma	.....	.....	78,791	102,789
160 Elmsley, N.	487	500	.....	1,745
161 Elmsley, S.	.....	660	.....	953
162 Elzevir and Grimsthorpe	.....	925	618	3,570
163 Emily	.....	450	.....	711
164 Emo	.....	243	1,139	6,420
165 Enniskillen	.....	4,000	4,190	52,020
166 Ennismore	.....	1,200	.....	2,225
167 Eramosa	103	.....	30	9,387
168 Erin	.....	.....	16	3,422
169 Ernestown	23,059	2,300	459	30,125
170 Escott Front	36	600	.....	898
171 Esquesing	39,362	250	157	41,583
172 Essa	.....	.....	394	10,341
173 Etobicoke	24,854	2,732	29,890	63,145
174 Euphemia	.....	800	1,221	12,543
175 Euphrasia	.....	1,000	1,843	6,815
176 Evanturel	.....	.....	.....	2,012
177 Faraday	.....	.....	419	3,722
178 Fenelon	.....	.....	1,112	6,002
179 Ferris	619	495	1,727	5,903
180 Finch	.....	3,009	3,139	9,076
181 Fitzroy	.....	1,500	.....	8,945
182 Flamboro E.	.....	1,900	.....	11,810
183 Flamboro W.	15,653	4,500	250	21,985
184 Flos	.....	815	5,314	13,343
185 Foley	.....	125	183	1,240
186 Fredericksburg N.	3,500	400	212	8,514
187 Fredericksburg S.	1,381	800	2,000	6,673
188 Fullarton	.....	800	.....	1,994
189 Gainsborough	.....	400	600	3,053
190 Galway and Cavendish	.....	.....	.....	1,397
191 Garafraxa E.	.....	.....	.....	2,540
192 Garafraxa W.	.....	1,000	736	3,907

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.

County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	145
6,463	.....	.....	4,573	6,724	.....	.....	.....	914	18,674	146
.....	1,157	.....	527	.....	.....	1,113	.....	.....	2,797	147
1,419	3,571	.....	387	.....	.....	4,200	.....	70	9,647	148
.....	.....	.....	.....	20,484	.....	.....	.....	.....	20,484	149
.....	.....	.....	.....	13,507	.....	.....	.....	941	14,448	150
.....	.....	.....	280	10,836	2,137	.....	.....	241	13,494	151
.....	.....	.....	.....	.....	.....	12,186	.....	689	12,875	152
.....	.....	.....	8,309	3,452	652	.....	.....	.....	12,413	153
6,904	.....	.....	1,455	5,986	.....	1,600	.....	2,217	18,162	154
.....	486	.....	4,177	.....	.....	.....	.....	.....	4,663	155
3,759	.....	.....	2,191	.....	.....	.....	.....	668	6,618	156
.....	.....	.....	.....	.....	.....	2,974	.....	.....	2,974	157
.....	.....	.....	3,567	46,537	.....	.....	.....	1,542	51,646	158
.....	.....	7,700	2,594	76,143	.....	.....	.....	13,902	100,339	159
.....	.....	.....	.....	.....	.....	500	.....	.....	500	160
.....	176	.....	.....	.....	.....	900	.....	.....	1,076	161
.....	.....	.....	618	.....	.....	1,655	.....	.....	2,273	162
.....	.....	.....	.....	.....	237	.....	.....	.....	237	163
.....	2,310	.....	1,139	.....	.....	900	.....	50	4,399	164
.....	2,305	.....	2,371	34,716	.....	.....	.....	4,736	44,128	165
935	.....	.....	.....	.....	.....	.....	.....	.....	935	166
4,868	4,021	.....	.....	.....	.....	.....	.....	503	9,392	167
.....	.....	.....	.....	.....	.....	1,566	.....	.....	1,566	168
3,515	.....	.....	.....	.....	.....	.....	.....	11	3,526	169
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	170
.....	.....	.....	.....	.....	.....	157	.....	374	531	171
6,104	212	.....	394	.....	.....	.....	.....	340	7,050	172
.....	.....	.....	29,890	.....	10,333	14,145	.....	350	54,718	173
2,261	61	.....	.....	16,254	3,144	.....	.....	6,509	28,229	174
.....	506	.....	1,837	.....	.....	.....	.....	263	2,606	175
.....	225	.....	.....	.....	.....	99	.....	65	389	176
253	1,241	.....	362	.....	.....	.....	.....	511	2,367	177
.....	3,576	.....	1,112	.....	.....	.....	.....	274	4,962	178
.....	1,335	.....	1,727	.....	.....	769	.....	157	3,988	179
.....	186	.....	726	26,843	8,620	1,780	.....	2,238	40,393	180
3,838	1,655	.....	.....	.....	.....	.....	.....	.....	5,493	181
6,327	3,935	.....	.....	.....	.....	.....	.....	.....	10,262	182
.....	.....	.....	.....	477	.....	938	.....	.....	1,415	183
.....	.....	7,991	5,282	6,297	2,301	.....	.....	1,374	23,245	184
.....	581	.....	.....	.....	.....	.....	.....	.....	581	185
2,851	.....	.....	.....	.....	.....	.....	.....	.....	2,851	186
2,186	448	.....	2,000	.....	.....	1,381	.....	.....	6,015	187
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	188
.....	.....	.....	600	.....	.....	.....	.....	80	680	189
305	.....	.....	.....	.....	.....	.....	.....	35	340	190
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	191
.....	.....	.....	628	808	.....	1,091	.....	268	2,795	192

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities and Counties in which located.	Receipts, 1909.						
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$
193 Georgina, York	506	8,116	52	26	.....	.....	500
194 Glamorgan, Haliburton	193	1,147	40	.....	.....	.....	11
195 Glanford, Wentworth	1,528	9,331	72	63	362	2,400	.....
196 Glenelg, Grey	2,785	11,015	48	2	43	.....	600
197 Gloucester, Carleton	61	34,167	255	19	47	.....	10,400
198 Goderich, Huron	.....	13,450	.....	.....	.....	.....	3,400
199 Gordon, Manitoulin	244	2,389	3	.....	1	50	600
200 Gosfield N., Essex	220	21,366	.....	91	82	.....	13,434
201 Gosfield S., Essex	446	17,668	.....	.....	31	.....	4,700
202 Goulbourn, Carleton	1,868	13,722	.....	6	187	.....	6,700
203 Gower, N., Carleton	1,258	11,914	30	22	14	662	1,300
204 Gower S., Grenville	.....	4,643	10	.....	.....	.....	19
205 Grantham, Lincoln	130	16,025	48	.....	111	900	1,300
206 Grattan, Renfrew	1,512	4,017	.....	7	.....	.....	.....
207 Greenock, Bruce	334	17,798	251	3	8	381	2,130
208 Grey, Huron	6,374	27,923	200	15	1,625	12,310	410
209 Griffith & Mattawatchan, Renfrew	166	885	.....	.....	.....	.....	.....
210 Grimsby N., Lincoln	1,243	12,262	.....	.....	.....	.....	.....
211 Grimsby S., Lincoln	461	9,061	.....	2	19	.....	800
212 Guelph, Wellington	.....	14,711	54	1	686	661	12,769
213 Gwillimbury E., York	664	18,324	154	97	712	500	623
214 Gwillimbury N., York	.....	8,632	104	.....	11	.....	525
215 Gwillimbury W., Simcoe	528	14,886	.....	.....	18	.....	.....
216 Hagar, Sudbury	185	820	96	5	3	177	.....
217 Hagarty, Jones, &c., Renfrew	488	8,845	325	78	60	.....	.....
218 Hagerman, Parry Sound	296	1,445	50	29	.....	.....	.....
219 Haldimand, Northumberland	497	19,626	.....	112	29	.....	8,500
220 Hallam, Sudbury	176	1,083	.....	.....	5	.....	.....
221 Hallowell, Prince Edward	1,010	14,188	.....	.....	22	.....	.....
222 Hamilton, Northumberland	1,092	19,611	.....	1	37	.....	4,000
223 Hanmer, Sudbury	213	1,750	24	.....	.....	.....	1,009
224 Harley, Nipissing	.....	2,414	.....	.....	.....	.....	2,140
225 Harvey, Peterborough	.....	4,960	.....	.....	2	.....	993
226 Harwich, Kent	6,730	44,960	91	50	210	.....	3,963
227 Hawkesbury E., Prescott	1,110	14,923	315	33	.....	.....	.....
228 Hawkesbury W., Prescott	.....	9,942	.....	140	.....	.....	332
229 Hay, Huron	720	19,787	144	3	3	.....	2,300
230 Head, Clara and Maria, Renfrew	140	1,096	158	35	.....	.....	.....
231 Hibbert, Perth	4,678	20,730	108	6	113	.....	500
232 Hillier, Prince Edward	160	9,036	.....	23	.....	.....	2,038
233 Hilton, Algoma	695	2,029	26	60	34	.....	1,000
234 Himsworth N., Parry Sound	810	3,783	115	15	.....	.....	600
235 Himsworth S., Parry Sound	11	4,462	99	1	.....	.....	500
236 Hinchinbrooke, Frontenac	1,795	6,209	88	33	.....	.....	.....
237 Holland, Grey	2,379	11,928	50	23	.....	.....	.....
238 Hope, Durham	4,285	18,897	.....	2	1,581	630	1,500
239 Horton, Renfrew	128	4,847	.....	4	36	150	.....
240 Houghton, Norfolk	904	9,963	10	7	.....	.....	1,100

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$		$	$	$	$	$	$	
.....	.....	.....	.....	5	36	9,241	505	77	131	1,740	.....	193
40	.....	.....	.....	.....	69	1,860	191	.....	93	126	.....	194
.....	.....	.....	.....	.....	125	13,881	498	113	174	1,211	.....	195
.....	.....	.....	.....	.....	82	14,575	790	6	315	2,824	.....	196
.....	2,700	2,400	.....	.....	583	50,632	2,314	200	395	9,422	.....	197
.....	.....	.....	.....	.....	89	16,939	651	59	207	2,771	.....	198
.....	.....	.....	.....	.....	760	4,047	245	3	64	1,072	.....	199
.....	4,666	6,525	79	.....	*1,514	47,977	2,359	191	418	4,308	6,301	200
.....	7,124	.....	105	.....	†1,551	31,625	821	417	325	3,849	.....	201
.....	.....	.....	.....	.....	341	22,824	1,266	.....	202	3,145	.....	202
.....	.....	.....	.....	.....	241	15,441	791	210	129	2,130	.....	203
.....	.....	.....	.....	.....	101	4,773	302	.....	66	541	.....	204
.....	.....	.....	.....	.....	132	18,646	688	.....	250	1,988	.....	205
.....	.....	.....	.....	.....	256	5,792	376	2	112	429	166	206
.....	.....	.....	.....	339	119	21,363	794	39	188	3,957	.....	207
.....	11,743	.....	497	.....	308	61,405	1,267	347	370	4,931	.....	208
.....	.....	.....	.....	.....	57	1,108	211	.....	56	44	.....	209
15,000	2,642	.....	59	.....	39	31,245	862	.....	160	3,091	.....	210
.....	.....	.....	.....	.....	248	10,591	422	65	185	1,664	.....	211
.....	.....	.....	.....	.....	413	29,295	880	20	392	5,961	75	212
4,000	.....	.....	.....	.....	93	25,167	749	96	399	3,472	15	213
.....	.....	.....	.....	.....	147	9,419	443	.....	98	1,263	.....	214
.....	.....	.....	.....	.....	216	15,648	795	.....	216	1,599	.....	215
.....	.....	.....	.....	.....	467	1,753	216	24	59	546	.....	216
.....	.....	.....	.....	48	211	10,055	795	143	213	1,263	.....	217
.....	.....	.....	.....	.....	186	2,006	263	.....	69	185	100	218
.....	.....	.....	.....	.....	202	28,966	1,052	25	330	4,721	.....	219
.....	.....	.....	.....	.....	22	1,286	248	.....	62	97	.....	220
.....	.....	.....	.....	.....	378	15,598	440	.....	226	1,412	.....	221
.....	.....	.....	.....	.....	486	25,227	943	106	391	5,472	118	222
.....	.....	.....	.....	.....	36	3,032	277	2	72	134	155	223
.....	.....	.....	.....	.....	574	5,128	433	.....	230	3,144	.....	224
.....	.....	.....	.....	.....	100	6,055	364	.....	126	475	185	225
3,800	8,779	.....	75	550	‡2,163	71,371	2,242	71	674	11,847	900	226
.....	.....	.....	.....	.....	197	16,578	616	.....	76	2,683	.....	227
.....	.....	.....	.....	.....	758	11,172	354	17	110	2,653	.....	228
.....	.....	.....	.....	.....	400	23,357	828	573	223	4,587	.....	229
.....	.....	.....	.....	.....	39	1,468	292	.....	70	25	.....	230
.....	7,693	.....	.....	622	184	34,634	779	.....	563	3,781	.....	231
.....	.....	.....	.....	.....	132	11,389	470	.....	192	478	.....	232
.....	.....	.....	.....	.....	733	4,577	247	.....	152	1,255	.....	233
.....	.....	.....	.....	.....	635	5,958	377	1	148	1,010	875	234
.....	.....	.....	.....	.....	212	5,285	411	.....	157	547	.....	235
.....	.....	.....	.....	.....	165	8,290	389	.....	138	1,231	.....	236
.....	.....	.....	.....	.....	42	14,422	827	19	210	2,596	.....	237
.....	.....	.....	.....	.....	148	27,043	946	2	370	3,271	.....	238
.....	.....	.....	.....	.....	177	5,342	313	.....	144	535	.....	239
2,800	.....	.....	42	.....	367	15,193	591	.....	155	2,530	.....	240

* Includes $720 telephone rates and $707 from other municipalities.
† Including $1,465 from other municipalities as share of debt.
‡ Including $250 Government Grant for bridge, and $1,095 from other municipalities as share of drains.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.—*Continued.*						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
193 Georgina	65	5	2,123	3,730	.....	.....	.....
194 Glamorgan	12	5	175	1,122	.....	.....	.....
195 Glanford	60	82	3,898	3,919	.....	.....	2,700
196 Glenelg	152	10	1,706	5,778	.....	.....	.....
197 Gloucester	193	122	5,400	16,427	3,402	.....	.....
198 Goderich	136	85	3,676	4,966	.....	.....	.....
199 Gordon	.....	52	.....	1,315	.....	.....	.....
200 Gosfield N.	72	189	2,044	6,788	3,561	.....	.....
201 Gosfield, S.	56	35	.....	6,838	7,777	.....	.....
202 Goulbourn	28	110	2,930	6,267	.....	.....	.....
203 Gower N.	17	23	2,232	5,179	1,578	.....	.....
204 Gower S.	15	74	997	1,783	62	.....	.....
205 Grantham	15	10	5,284	5,113	.....	1,829	900
206 Grattan	107	9	1,225	3,081	.....	.....	.....
207 Greenock	317	5	4,429	6,664	.....	.....	146
208 Grey	38	45	4,756	7,505	9,736	.....	.....
209 Griffith and Mattawatchan	.....	.....	.....	653	.....	.....	.....
210 Grimsby N.	24	50	3,643	18,375	2,483	.....	.....
211 Grimsby S.	52	15	1,484	4,773	.....	.....	.....
212 Guelph	137	161	4,461	6,554	532	.....	634
213 Gwillimbury E.	164	32	4,592	12,855	.....	.....	701
214 Gwillimbury N.	15	276	2,215	3,538	.....	.....	.....
215 Gwillimbury W.	12	93	5,043	7,374	.....	.....	.....
216 Hagar	10	.....	.....	429	.....	.....	184
217 Hagarty, Jones, &c.	159	75	805	4,523	.....	220	.....
218 Hagerman	20	8	.....	1,212	.....	.....	.....
219 Haldimand	144	152	4,000	8,671	.....	.....	.....
220 Hallam	.....	5	.....	738	.....	.....	.....
221 Hallowell	575	56	4,092	6,705	.....	.....	.....
222 Hamilton	385	14	4,788	7,705	.....	.....	.....
223 Hanmer	8	193	.....	871	65	.....	.....
224 Harley	29	5	.....	511	.....	.....	.....
225 Harvey	27	5	696	2,257	.....	.....	.....
226 Harwich	205	324	6,257	16,490	8,007	.....	.....
227 Hawkesbury E.	56	163	3,341	9,208	.....	.....	.....
228 Hawkesbury W.	3	114	1,560	4,137	.....	.....	.....
229 Hay	188	66	3,406	10,204	35	.....	.....
230 Head, Clara and Maria	.....	15	130	613	.....	.....	.....
231 Hibbert	49	.....	4,725	5,514	8,703	.....	.....
232 Hillier	202	77	2,806	4,898	.....	.....	.....
233 Hilton	.....	35	.....	1,375	.....	214	.....
234 Himsworth N.	61	95	.....	2,265	.....	.....	.....
235 Himsworth S.	24	63	.....	3,378	.....	.....	.....
236 Hinchinbrooke	.....	23	2,621	2,912	.....	.....	.....
237 Holland	119	60	2,172	6,703	.....	.....	.....
238 Hope	1,016	11	4,800	8,873	.....	.....	630
239 Horton	.....	75	1,059	2,947	.....	.....	.....
240 Houghton	21	136	800	8,163	449	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	500	11	.....	110	8,997	244	21	.....	193
63	.....	.....	.....	55	.....	18	1,860	.....	1,537	.....	194
.....	.....	.....	.....	.....	.....	331	12,986	895	437	.....	195
50	.....	.....	600	81	.....	.....	12,312	2,263	100	.....	196
463	889	279	9,400	797	.....	857	50,560	72	35,625	.....	197
.....	.....	.....	4,024	94	.....	70	16,739	200	173	.....	198
100	.....	.....	658	107	.....	27	3,643	404	1,268	.....	199
513	6,269	340	10,400	2,272	.....	1,952	47,977	.....	16,455	.....	200
343	2,973	.....	6,935	844	.....	197	31,410	215	12,497	.....	201
.....	.....	.....	6,700	111	.....	47	20,806	2,018	2,847	.....	202
.....	881	.....	1,300	399	.....	91	14,960	481	305	.....	203
.....	113	.....	594	50	.....	176	4,773	.....	649	.....	204
.....	.....	.....	1,300	939	.....	147	18,463	183	561	4,470	205
.....	.....	.....	.....	.....	.....	15	5,522	270	627	.....	206
.....	.....	545	2,130	627	.....	531	20,372	991	453	.....	207
.....	3,648	1,381	410	3,821	.....	118	38,373	23,032	563	.....	208
.....	.....	.....	.....	.....	.....	4	968	140	210	.....	209
.....	192	.....	.....	148	.....	328	29,356	1,889	1,542	.....	210
104	.....	350	809	99	.....	137	10,150	441	.....	.....	211
.....	.....	.....	9,326	119	.....	43	29,295	.....	12,501	.....	212
165	.....	83	.....	252	.....	250	23,825	1,342	1,831	.....	213
500	.....	.....	727	40	.....	97	9,212	207	112	.....	214
.....	.....	.....	.....	.....	.....	248	15,380	268	1,094	.....	215
151	.....	.....	.....	50	.....	.....	1,669	84	422	.....	216
.....	.....	.....	.....	129	.....	126	8,451	1,604	1,493	1,400	217
.....	.....	.....	.....	.....	.....	.....	1,857	149	1,083	.....	218
.....	.....	.....	8,500	193	.....	433	28,221	745	907	.....	219
.....	.....	.....	.....	.....	.....	5	1,155	131	28	.....	220
216	.....	.....	.....	211	.....	47	13,980	1,618	46	.....	221
.....	.....	.....	4,000	153	.....	222	24,297	930	2,223	.....	222
109	.....	.....	1,059	85	.....	.....	3,030	2	3,204	.....	223
97	.....	.....	562	104	.....	13	5,128	.....	2,441	.....	224
.....	.....	73	1,292	108	.....	83	5,691	364	1,676	.....	225
1,536	6,435	.....	3,963	1,371	.....	790	61,112	10,259	4,682	.....	226
58	.....	.....	.....	20	.....	34	16,255	323	1,500	.....	227
365	86	1,165	362	182	.....	64	11,172	.....	.....	.....	228
.....	95	.....	2,300	105	.....	447	23,057	300	372	.....	229
29	.....	.....	.....	12	.....	26	1,212	256	927	.....	230
643	3,076	167	500	1,095	.....	373	29,968	4,666	.....	.....	231
.....	.....	.....	2,038	41	.....	53	11,255	134	563	.....	232
.....	.....	.....	1,000	98	.....	30	4,406	171	1,070	832	233
290	.....	.....	600	41	.....	22	5,785	173	1,255	.....	234
275	.....	.....	.....	157	.....	142	5,154	131	2,014	.....	235
.....	.....	.....	.....	.....	.....	78	7,392	898	136	.....	236
.....	.....	.....	.....	.....	.....	46	12,752	1,670	1,028	.....	237
.....	.....	2,761	.....	125	.....	339	23,144	3,899	2,702	.....	238
.....	.....	.....	.....	90	.....	75	5,238	104	1,209	.....	239
310	.....	190	1,100	213	.....	257	14,915	278	1,976	.....	240

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
193 Georgina	.....	115	.....	380
194 Glamorgan	.....	.....	390	1,927
195 Glanford	7,300	3,835	.....	12,467
196 Glenelg	.....	1,900	1,357	5,620
197 Gloucester	.....	7,150	4,700	47,547
198 Goderich	.....	.....	.....	373
199 Gordon	350	.....	470	2,492
200 Gosfield N.	.....	15,690	8,670	40,815
201 Gosfield, S.	.....	.....	2,302	15,014
202 Goulbourn	7,691	200	298	13,054
203 Gower N.	1,082	1,500	200	3,568
204 Gower S.	.....	.....	.....	649
205 Grantham	900	.....	43	6,157
206 Grattan	.....	450	.....	1,347
207 Greenock	146	.....	.....	1,590
208 Grey	.....	1,140	25,332	50,067
209 Griffith and Mattawatchan	.....	.....	.....	350
210 Grimsby N.	.....	1,250	.....	4,681
211 Grimsby S.	.....	200	970	1,611
212 Guelph	14,634	100	474	27,709
213 Gwillimbury E.	13,175	50	6,499	22,897
214 Gwillimbury N.	.....	.....	.....	319
215 Gwillimbury W.	.....	.....	.....	1,362
216 Hagar	184	1,000	699	2,389
217 Hagarty, Jones, &c.	1,000	52	65	5,614
218 Hagerman	.....	1,375	.....	2,607
219 Haldimand	.....	3,850	27	5,529
220 Hallam	.....	268	.....	427
221 Hallowell	.....	1,100	4,544	7,308
222 Hamilton	.....	2,400	133	5,686
223 Hanmer	.....	.....	115	3,321
224 Harley	.....	985	2,845	6,271
225 Harvey	.....	.....	.....	2,040
226 Harwich	.....	3,400	8,158	26,499
227 Hawkesbury E.	.....	1,100	342	3,265
228 Hawkesbury W.	.....	2,625	1,012	3,637
229 Hay	.....	1,825	.....	2,497
230 Head, Clara and Maria	.....	.....	171	1,354
231 Hibbert	.....	950	723	6,339
232 Hillier	.....	1,950	.....	2,647
233 Hilton	.....	1,122	1,928	5,123
234 Himsworth N.	.....	1,040	125	2,593
235 Himsworth S.	.....	.....	2,474	4,619
236 Hinchinbrooke	.....	1,000	189	2,223
237 Holland	.....	940	.....	3,638
238 Hope	30,840	350	.....	37,791
239 Horton	500	1,275	13	3,101
240 Houghton	.....	2,200	2,690	7,144

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	.....	.....	.....	.....	40	40	193
239	911	.....	337	.....	.....	247	.....	129	1,863	194
.....	.....	.....	.....	.....	.....	600	.....	.....	600	195
.....	.....	.....	1,357	.....	.....	.....	.....	25	1,382	196
3,199	11,336	.....	3,840	3,745	3,999	8,040	.....	.....	34,159	197
.....	42	.....	.....	.....	.....	.....	.....	95	137	198
.....	350	.....	470	.....	.....	100	.....	3	923	199
2,054	.....	.....	1,698	31,696	6,185	8,034	.....	3,234	52,901	200
2,698	236	.....	1,131	19,200	.....	3,700	.....	2,439	29,404	201
3,108	350	.....	.....	.....	.....	2,091	.....	154	5,703	202
.....	.....	.....	.....	6,751	.....	.....	.....	.....	6,751	203
.....	.....	.....	.....	880	.....	19	.....	.....	899	204
.....	547	.....	.....	.....	20,000	.....	.....	100	20,647	205
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	206
.....	.....	.....	.....	.....	13,420	.....	.....	609	14,029	207
.....	15	4,287	.....	68,220	26,923	.....	.....	1,306	100,751	208
64	.....	.....	.....	.....	347	.....	.....	15	426	209
3,765	.....	.....	15,000	3,264	.....	.....	.....	159	22,188	210
.....	.....	367	882	.....	.....	.....	.....	.....	1,249	211
.....	.....	.....	.....	.....	.....	12,769	.....	419	13,188	212
.....	.....	.....	6,178	.....	752	2,474	.....	.....	9,404	213
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	214
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	215
.....	.....	.....	699	.....	.....	.....	.....	.....	699	216
728	265	2,000	.....	600	.....	.....	.....	567	4,160	217
.....	793	.....	.....	.....	.....	.....	.....	350	1,143	218
.....	.....	.....	.....	.....	.....	.....	.....	100	100	219
.....	234	.....	.....	.....	.....	.....	.....	74	308	220
.....	.....	.....	4,499	.....	.....	.....	.....	.....	4,499	221
.....	.....	.....	.....	.....	.....	.....	.....	24	24	222
.....	835	.....	115	.....	.....	1,061	.....	229	2,240	223
.....	760	.....	460	.....	.....	1,840	.....	.....	3,060	224
736	.....	2,434	.....	.....	.....	.....	.....	350	3,520	225
.....	.....	.....	5,259	26,690	.....	.....	.....	11,290	43,239	226
.....	.....	.....	342	.....	.....	.....	.....	996	1,338	227
.....	.....	1,214	361	185	.....	332	.....	.....	2,092	228
600	.....	.....	.....	755	.....	.....	.....	130	1,485	229
.....	605	.....	171	.....	.....	.....	.....	142	918	230
.....	.....	.....	723	18,402	1,674	.....	.....	.....	20,799	231
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	232
.....	150	.....	2,760	.....	.....	.....	.....	110	3,020	233
.....	1,400	.....	.....	.....	.....	.....	.....	20	1,420	234
.....	829	.....	2,299	.....	.....	518	.....	.....	3,646	235
400	.....	.....	.....	.....	.....	.....	.....	90	490	236
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	237
.....	.....	.....	.....	.....	.....	1,500	.....	.....	1,500	238
.....	.....	.....	.....	.....	.....	1,500	.....	102	1,602	239
485	749	1,000	2,490	.....	.....	.....	.....	.....	4,724	240

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities and Counties in which located.	Receipts, 1909.						
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$
241 Howard, Kent	3,939	30,889	44	.....	15	.....	.....
242 Howe Island, Frontenac	541	2,121	.....	.....	.....	.....	.....
243 Howick, Huron	2,089	25,735	30	90	437	1,797	4,500
244 Howland, Bid. & Sheg., Manitoulin	391	3,628	45	.....	.....	.....	250
245 Hudson, Nipissing	265	2,052	.....	.....	40	.....	.....
246 Hullett, Huron	97	18,862	.....	102	6	515	4,000
247 Humberstone, Welland	1,167	13,812	485	22	60	2,246	.....
248 Humphrey, Parry Sound	988	3,810	113	1	.....	.....	.....
249 Hungerford, Hastings	385	21,904	75	74	.....	.....	.....
250 Huntingdon, Hastings	.....	8,549	.....	.....	41	.....	3,434
251 Huntley; Carleton	675	14,927	.....	.....	.....	.....	3,252
252 Huron, Bruce	2,051	20,550	.....	56	146	122	.....
253 Ignace, Kenora	.....	1,003	.....	.....	.....	.....	.....
254 Innisfil, Simcoe	3,249	21,795	.....	20	141	259	.....
255 Jaffray & Melick, Kenora	117	1,758	.....	1,155	.....	.....	2,000
256 James, Nipissing	.....	5,476	1,028	2,136	.....	.....	1,323
257 Jocelyn, Algoma	299	2,130	.....	2	.....	.....	.....
258 Johnson, Tarbutt, &c., Algoma	649	5,637	5	.....	5	.....	2,400
259 Joly, Parry Sound	448	816	.....	.....	.....	.....	.....
260 Kaladar & Anglesea, Len. & Addn.	521	2,786	70	1	.....	.....	.....
261 Kennebec, Frontenac	549	3,336	2	12	.....	.....	.....
262 Kenyon, Glengarry	3,382	21,397	187	7	.....	.....	2,222
263 Keppel, Grey	4,743	14,781	.....	5	230	350	500
264 Kerns, Nipissing	419	3,978	.....	.....	.....	.....	2,000
265 Kincardine, Bruce	770	18,583	50	6	33	.....	3,000
266 King, York	284	33,078	277	.....	1,800	8,970	.....
267 Kingston, Frontenac	8,338	19,874	.....	.....	9	.....	981
268 Kinloss, Bruce	2,119	11,998	53	46	.....	.....	.....
269 Kitley, Leeds	1,004	10,774	57	31	32	179	880
270 Korah, Algoma	6,152	6,113	20	.....	.....	.....	.....
271 Laird, Algoma	567	1,823	.....	.....	.....	.....	.....
272 Lanark, Lanark	537	7,990	.....	14	7	.....	100
273 Lancaster, Glengarry	1,655	17,271	94	.....	.....	.....	4,874
274 Lavallee, Rainy River	606	7,386	163	.....	.....	.....	4,246
275 Lavant, Lanark	450	1,965	48	5	.....	.....	.....
276 Laxton, Digby & Long'd., Victoria	448	5,362	.....	.....	4	.....	.....
277 Leeds & Lansdowne Front, Leeds	328	22,210	5	82	3	.....	7,800
278 Leeds & Lansdowne Rear, Leeds	695	12,823	100	.....	.....	.....	2,328
279 Limerick, Hastings	87	1,475	.....	.....	.....	.....	.....
280 Lindsay, Bruce	95	4,404	.....	.....	.....	.....	700
281 Lobo, Middlesex	13,692	18,094	78	8	112	.....	.....
282 Lochiel, Glengarry	3,220	20,004	113	30	108	.....	.....
283 Logan, Perth	13,437	24,669	54	30	317	.....	1,174
284 London, Middlesex	15,598	50,959	513	8	369	3,475	6,000
285 Longueuil, Prescott	146	3,876	53	.....	.....	.....	21
286 Loughborough, Frontenac	289	10,280	65	22	.....	.....	1,400
287 Louth, Lincoln	.....	14,315	48	50	17	.....	600
288 Luther E., Dufferin	380	13,519	.....	.....	.....	.....	7,443

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
.....	4,634	3,500	270	100	1,606	44,997	1,081	8	818	5,163	4,795	241
.....	.....	.....	.....	.....	18	2,680	114	.....	36	143	.....	242
.....	.....	.....	.....	.....	820	35,498	1,013	6	872	8,215	.....	243
.....	.....	.....	.....	.....	209	4,523	418	408	116	161	.....	244
2,600	.....	5,000	130	.....	1,827	11,914	323	38	178	2,665	.....	245
1,500	.....	.....	.....	.....	227	25,309	816	24	207	5,415	88	246
.....	.....	.....	.....	.....	215	18,007	827	10	492	1,912	.....	247
1,200	.....	.....	.....	.....	38	6,150	432	7	176	882	.....	248
.....	.....	.....	.....	.....	84	22,522	856	35	230	466	.....	249
.....	.....	.....	.....	.....	100	12,124	559	35	120	399	.....	250
.....	.....	.....	.....	.....	43	18,897	850	1,155	162	2,645	.....	251
.....	.....	3,500	.....	396	771	27,592	911	6	456	4,912	4,116	252
.....	.....	.....	.....	.....	.....	1,003	155	.....	42	371	.....	253
1,000	.....	.....	14	.....	233	26,711	1,190	45	499	3,676	.....	254
1,500	.....	.....	.....	.....	.....	6,530	828	.....	126	602	.....	255
.....	.....	.....	.....	.....	157	10,120	1,316	.....	1,869	4,773	.....	256
.....	.....	.....	.....	.....	36	2,467	233	.....	40	182	79	257
.....	.....	.....	.....	.....	1,231	9,927	398	46	174	3,186	55	258
.....	.....	.....	.....	.....	65	1,329	153	.....	40	103	.....	259
.....	.....	.....	.....	108	67	3,553	255	576	98	298	.....	260
.....	.....	.....	.....	.....	.....	3,899	342	.....	129	234	.....	261
.....	.....	.....	.....	.....	194	27,389	790	68	381	1,971	65	262
.....	.....	.....	.....	.....	344	20,953	1,022	.....	268	3,354	40	263
.....	.....	.....	.....	.....	1,658	8,055	363	59	96	2,643	626	264
.....	.....	.....	.....	737	184	23,363	720	7	221	4,429	.....	265
.....	.....	.....	.....	.....	472	44,881	1,553	343	371	6,703	.....	266
.....	.....	.....	.....	.....	200	29,402	618	26	264	2,253	.....	267
.....	.....	.....	.....	559	115	14,890	637	.....	125	1,748	.....	268
.....	.....	.....	.....	.....	167	13,124	507	.....	170	3,998	.....	269
.....	.....	.....	.....	.....	*2,485	14,770	782	.....	267	5,522	543	270
.....	.....	2,198	75	.....	294	4,957	240	7	57	293	2,156	271
.....	.....	.....	.....	.....	155	8,803	444	.....	188	1,504	.....	272
.....	.....	.....	.....	.....	982	24,876	882	30	364	3,815	.....	273
.....	.....	.....	.....	.....	402	12,803	527	20	111	5,197	.....	274
.....	.....	.....	.....	.....	162	2,630	308	.....	48	53	.....	275
.....	.....	.....	.....	.....	183	5,997	356	2	95	981	.....	276
.....	.....	.....	.....	.....	287	30,715	849	104	297	7,496	10	277
.....	.....	.....	.....	.....	224	16,170	482	.....	68	3,380	.....	278
.....	.....	.....	.....	263	1,063	2,888	274	.....	98	420	.....	279
.....	.....	.....	.....	125	236	5,560	457	2	68	1,336	.....	280
.....	.....	.....	.....	.....	157	32,141	856	47	279	6,121	.....	281
.....	3,280	.....	.....	.....	502	27,257	1,009	116	180	4,633	50	282
.....	6,972	.....	265	.....	†3,174	50,092	1,113	4	253	7,123	.....	283
8,000	.....	.....	204	.....	804	85,930	2,031	294	804	8,705	.....	284
.....	.....	.....	.....	.....	.....	4,096	239	.....	30	363	.....	285
.....	.....	.....	.....	.....	104	12,160	453	90	180	1,087	.....	286
.....	.....	.....	.....	.....	459	15,489	606	.....	148	3,664	197	287
.....	.....	.....	.....	157	341	21,840	479	121	228	4,963	.....	288

* Including $2,000 Government Grant for roads.
† Including Government Grants: for roads $720, and for drains $1,000, and other municipalities for share of drains $1,220.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.—*Continued.*						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
241 Howard	12	532	3,653	8,803	4,934	.....	.....
242 Howe Island	.....	16	627	1,023	.....	.....	.....
243 Howick	78	78	5,629	8,687	426	2,894	.....
244 Howland, Bidwell & Sheguindah	.....	.....	.....	2,811	.....	.....	.....
245 Hudson	5	5	.....	4,394	.....	.....	.....
246 Hullett	53	24	3,285	8,542	172	.....	683
247 Humberstone	38	101	2,819	7,818	1,409	.....	.....
248 Humphrey	5	15	.....	3,343	.....	.....	.....
249 Hungerford	57	21	8,955	9,877	30	.....	.....
250 Huntingdon	10	25	4,508	5,541	.....	.....	.....
251 Huntley	21	51	4,451	5,755	160	.....	.....
252 Huron	67	15	5,749	8,080	.....	.....	147
253 Ignace	.....	.....	.....	332	.....	.....	.....
254 Innisfil	70	245	6,876	8,843	73	.....	178
255 Jaffray and Melick	.....	.....	.....	1,016	.....	.....	.....
256 James	.....	.....	.....	930	.....	.....	.....
257 Jocelyn	.....	12	.....	1,005	.....	.....	.....
258 Johnson, Tarbutt, &c.	65	32	.....	1,669	20	.....	.....
259 Joly	.....	15	.....	430	.....	.....	.....
260 Kaladar and Anglesea	80	190	289	1,713	.....	.....	.....
261 Kelvedee	55	162	.....	1,736	.....	.....	.....
262 Keryon	222	167	2,713	10,298	303	.....	.....
263 Keppel	208	191	1,939	6,597	2	661	1,653
264 Kerns	171	.....	.....	1,240	.....	.....	.....
265 Kincardine	65	106	5,065	7,752	.....	.....	.....
266 King	307	412	8,203	14,537	.....	.....	8,611
267 Kingston	760	279	11,537	6,770	.....	.....	.....
268 Kinloss	23	26	3,806	4,938	.....	.....	.....
269 Kitley	.....	96	2,023	6,135	192	.....	.....
270 Korah	.....	159	.....	1,375	15	.....	.....
271 Laird	3	5	.....	1,068	.....	.....	68
272 Lanark	13	83	2,335	3,992	.....	.....	.....
273 Lancaster	39	235	3,459	8,829	63	.....	.....
274 Lavellee	.....	31	.....	2,592	.....	.....	.....
275 Lavant	12	25	336	1,147	.....	.....	.....
276 Laxton, Digby and Longford	.....	42	391	1,97[illegible]	.....	.....	.....
277 Leeds and Lansdowne Front	15	72	2,71[illegible]	[illegible]	[illegible]	.....	.....
278 Leeds and Lansdowne Rear	.....	[illegible]	1,647	[illegible]	.....	.....	.....
279 Limerick	17	[illegible]	[illegible]	[illegible]	.....	.....	.....
280 Lindsay	[illegible]	[illegible]	[illegible]	[illegible]	.....	.....	.....
281 Lobo	21[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.....	.....
282 Lochiel	[illegible]	14[illegible]	[illegible]	[illegible]	[illegible]	.....	.....
283 Logan	55	20	[illegible]	[illegible]	[illegible]	[illegible]	.....
284 London	226	696	19,641	27,68[illegible]	73[illegible]	.....	.....
285 Longueuil	.....	.....	96[illegible]	2,38[illegible]	8[illegible]	.....	.....
286 Loughborough	.....	71	[illegible]	[illegible]	.....	.....	.....
287 Louth	[illegible]	[illegible]	[illegible]	[illegible]	.....	.....	.....
288 Luther E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
757	8,974	633	.....	1,000	.....	1,272	42,435	2,562	2,452	.....	241
.....	.....	.....	.....	.....	.....	188	2,147	533	400	.....	242
574	.....	250	4,500	616	.....	207	34,045	1,453	528	7,994	243
.....	.....	.....	250	9	.....	44	4,217	306	213	.....	244
79	.....	151	1,000	427	.....	53	9,318	2,596	1,409	.....	245
100	885	151	4,000	294	.....	395	25,134	175	.....	.....	246
277	1,143	.....	.....	360	.....	169	17,375	632	1,000	.....	247
116	.....	.....	.....	125	.....	143	5,244	906	2,880	.....	248
417	.....	.....	.....	140	.....	34	21,118	1,404	7,052	.....	249
100	.....	.....	737	88	.....	2	12,124	.....	8,988	.....	250
155	.....	.....	2,252	482	.....	271	18,410	487	2,248	.....	251
200	.....	.....	.....	39	.....	142	24,840	2,752	496	.....	252
.....	.....	.....	.....	.....	.....	67	967	36	.....	.....	253
.....	812	.....	.....	211	.....	53	22,771	3,940	1,775	.....	254
64	.....	.....	3,200	127	.....	70	6,033	497	1,790	.....	255
.....	.....	.....	800	156	.....	.....	9,844	276	10,198	.....	256
200	.....	.....	.....	37	.....	11	1,799	668	1,760	.....	257
273	.....	.....	2,900	197	.....	194	9,209	718	1,853	.....	258
.....	.....	.....	241	.....	.....	17	999	330	532	.....	259
.....	.....	.....	.....	10	.....	3	3,512	41	2,639	.....	260
.....	.....	.....	.....	.....	.....	43	2,701	1,198	3,151	.....	261
.....	52	.....	.....	252	.....	*6,212	23,971	3,418	8,631	.....	262
178	391	.....	500	477	.....	124	17,605	3,348	3,949	2,876	263
266	.....	188	2,000	128	.....	30	7,810	245	2,781	.....	264
963	.....	.....	3,000	413	.....	234	22,973	390	311	.....	265
.....	.....	.....	2,883	214	.....	674	44,809	72	1,187	.....	266
.....	.....	.....	981	19	.....	185	23,678	5,724	7,132	.....	267
280	.....	.....	.....	47	.....	54	11,688	3,302	.....	.....	268
.....	.....	.....	.....	.....	.....	3	13,124	.....	204	.....	269
.....	.....	.....	.....	1	.....	1,665	10,329	4,441	4,217	.....	270
95	.....	167	.....	147	.....	31	4,337	620	200	.....	271
.....	.....	.....	100	.....	.....	27	8,686	117	597	.....	272
751	91	.....	4,253	472	.....	224	23,510	1,366	8,103	.....	273
72	.....	.....	4,000	178	.....	75	12,803	.....	3,725	.....	274
.....	.....	.....	.....	.....	.....	31	1,960	670	198	.....	275
73	.....	.....	.....	72	.....	85	4,069	1,928	34	.....	276
.....	.....	.....	9,300	190	.....	80	30,242	473	491	.....	277
.....	.....	.....	2,328	18	.....	26	13,976	2,200	26	.....	278
.....	.....	.....	200	.....	.....	35	3,441	447	945	.....	279
.....	.....	.....	2,162	42	.....	63	5,226	334	2,389	.....	280
180	.....	.....	.....	61	.....	5	21,905	10,923	2,182	.....	281
266	.....	.....	.....	12	.....	67	25,927	2,230	4,867	.....	282
291	3,953	.....	1,174	1,620	.....	223	37,981	12,111	48	1,415	283
417	340	76	6,000	868	.....	1,501	70,721	15,209	14,209	.....	284
.....	.....	.....	.....	14	.....	1	3,796	.....	2,587	.....	285
.....	.....	.....	1,700	80	.....	6	12,936	12	5,704	.....	286
.....	.....	188	660	291	.....	6	14,918	573	1,399	.....	287
533	1,013	.....	6,600	498	.....	34	21,340	.....	375	.....	288

* Including $3,257, for outstanding cheques of 1907 and 1908, and $1,337, to other municipalities as share of drain expenses.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
241 Howard	.....	5,500	7,359	17,873
242 Howe Island	.....	.....	.....	933
243 Howick	.....	2,630	5,532	18,137
244 Howland, Bidwell & Sheguindah	.....	322	98	939
245 Hudson	.....	325	3,300	7,630
246 Hullett	683	.....	1,712	2,570
247 Humberstone	.....	2,850	5,788	10,270
248 Humphrey	.....	877	3,584	8,247
249 Hungerford	.....	4,000	2,699	15,155
250 Huntingdon	.....	500	600	10,088
251 Huntley	.....	1,200	7,417	11,352
252 Huron	75,147	5,700	432	84,527
253 Ignace	.....	.....	.....	36
254 Innisfil	178	.....	1,000	6,893
255 Jaffray and Melick	.....	42	1,436	3,765
256 James	.....	3,675	.....	14,149
257 Jocelyn	.....	1,034	435	3,897
258 Johnson, Tarbutt, &c.	.....	120	1,775	4,466
259 Joly	.....	25	.....	887
260 Kaladar and Anglesea	.....	361	8	3,049
261 Kennebec	.....	600	.....	4,949
262 Kenyon	.....	1,500	220	13,769
263 Keppel	1,653	495	3,527	15,848
264 Kerns	.....	1,050	282	4,358
265 Kincardine	.....	700	7,179	8,580
266 King	38,495	1,975	12	41,741
267 Kingston	400	1,600	.....	14,856
268 Kinloss	.....	600	900	4,702
269 Kitley	.....	2,000	.....	2,204
270 Korah	.....	3,675	.....	12,333
271 Laird	68	2,259	180	3,327
272 Lanark	.....	2,215	.....	2,929
273 Lancaster	.....	.....	2,176	11,645
274 Lavellee	.....	500	2,860	7,085
275 Lavant	.....	.....	26	894
276 Laxton, Digby and Longford	.....	500	1,657	4,119
277 Leeds and Lansdowne Front	.....	5,000	751	6,715
278 Leeds and Lansdowne Rear	.....	.....	.....	2,469
279 Limerick	.....	250	46	1,688
280 Lindsay	.....	.....	288	4,011
281 Lobo	.....	1,740	1,566	17,020
282 Lochiel	.....	1,200	70	8,367
283 Logan	.....	.....	2,012	15,990
284 London	.....	3,000	18,058	50,476
285 Longueuil	.....	.....	.....	2,587
286 Loughborough	.....	.....	.....	5,826
287 Louth	.....	350	853	3,178
288 Luther E.	.....	667	3,144	4,286

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total Liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
200	225	.....	2,245	5,711	2,867	.....	.....	3,246	14,494	241
737	.....	.....	.....	.....	.....	.....	.....	39	776	242
.....	.....	6,500	3,532	.....	1,034	.....	660	250	11,976	243
.....	170	.....	.....	.....	.....	.....	.....	6	176	244
.....	.....	.....	2,521	.....	4,849	.....	.....	242	7,612	245
994	.....	3,430	1,712	.....	.....	.....	.....	.....	6,136	246
.....	.....	.....	2,770	3,018	.....	.....	.....	300	6,088	247
.....	1,093	.....	3,584	.....	.....	.....	.....	.....	4,677	248
6,113	.....	.....	2,699	.....	.....	.....	.....	294	9,106	249
4,470	.....	.....	600	.....	.....	3,234	.....	.....	8,304	250
.....	25	.....	7,417	.....	.....	1,000	.....	.....	8,442	251
.....	.....	75,000	432	.....	3,500	.....	.....	.....	78,932	252
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	253
.....	.....	.....	1,000	3,377	.....	.....	.....	.....	4,377	254
.....	.....	.....	1,436	.....	.....	.....	.....	.....	1,436	255
.....	2,015	.....	.....	.....	.....	523	.....	11,265	13,803	256
.....	765	.....	435	.....	.....	.....	.....	.....	1,200	257
.....	1,297	.....	1,717	.....	.....	.....	.....	69	3,083	258
.....	335	.....	.....	.....	.....	.....	.....	55	390	259
290	.....	.....	.....	.....	.....	.....	.....	1,420	1,710	260
431	2,400	.....	.....	.....	.....	.....	.....	945	3,776	261
.....	544	.....	.....	1,168	.....	8,898	.....	37	10,647	262
.....	1,688	3,000	3,479	3,665	378	.....	.....	33	12,243	263
.....	1,202	.....	282	.....	635	.....	.....	25	2,144	264
.....	.....	.....	7,019	.....	.....	.....	.....	.....	7,019	265
.....	.....	.....	.....	.....	.....	400	.....	611	1,011	266
9,555	.....	.....	.....	.....	.....	.....	.....	1,940	11,495	267
.....	.....	.....	900	.....	.....	.....	.....	.....	900	268
.....	.....	.....	.....	.....	.....	880	.....	.....	880	269
.....	950	.....	.....	.....	.....	.....	.....	95	1,045	270
.....	.....	.....	180	.....	2,031	.....	.....	.....	2,211	271
.....	50	.....	.....	.....	.....	.....	.....	158	208	272
3,058	105	.....	1,876	761	.....	4,874	.....	1,668	12,342	273
.....	1,953	.....	760	.....	.....	2,246	.....	.....	4,959	274
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	275
.....	.....	.....	1,357	.....	.....	.....	.....	.....	1,357	276
.....	.....	.....	.....	.....	.....	1,000	.....	134	1,134	277
.....	362	.....	.....	.....	.....	.....	.....	.....	362	278
.....	545	.....	.....	.....	.....	.....	.....	241	786	279
.....	1,304	.....	.....	.....	.....	222	.....	112	1,638	280
7,565	.....	.....	1,251	.....	.....	.....	.....	.....	8,816	281
205	.....	.....	.....	3,280	.....	.....	.....	2,317	5,802	282
.....	.....	6,500	445	31,488	.....	.....	.....	90	38,523	283
17,591	617	.....	16,583	1,126	2,516	.....	.....	1,189	39,622	284
833	1,165	.....	.....	.....	.....	21	.....	567	2,586	285
2,681	1,068	.....	.....	.....	.....	1,400	.....	678	5,827	286
1,650	.....	.....	.....	.....	1,566	187	.....	80	3,483	287
.....	.....	.....	1,981	4,225	.....	1,443	.....	636	8,285	288

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities and Counties in which located.	Receipts, 1909.						
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$
289 Luther, W., Wellington	2,912	14,715	45	35	38	.....	2,601
290 Lutterworth, Haliburton	9	1,551	.....	.....	.....	.....	.....
291 McDougall, Parry Sound	862	2,449	2	2	24	.....	.....
292 McGillivray, Middlesex	1,671	21,805	.....	36	16	.....	3,217
293 McIrvine, Rainy River	229	2,243	.....	.....	.....	.....	1,000
294 McKellar, Parry Sound	76	1,903	12	28	.....	.....	.....
295 McKillop, Huron	1,526	21,273	53	.....	529	1,903	1,000
296 McKim, Sudbury	.....	3,422	.....	8	.....	.....	1,100
297 McLean and Ridout, Muskoka	95	2,649	15	16	.....	.....	350
298 McMurrich, Parry Sound	211	2,067	47	.....	9	.....	.....
299 McNab, Renfrew	4,328	16,182	.....	9	266	.....	.....
300 Macaulay, Muskoka	110	3,539	5	6	.....	.....	1,650
301 Macdonald & Meredith, Algoma	283	3,124	.....	9	.....	.....	1,500
302 Machar, Parry Sound	438	2,011	.....	.....	.....	.....	600
303 Machin, Kenora	.....	494	.....	100	.....	.....	1,000
304 Madoc, Hastings	1,396	15,717	.....	.....	.....	.....	.....
305 Maidstone, Essex	.....	21,767	135	.....	147	.....	.....
306 Malahide, Elgin	.....	29,386	.....	.....	31	.....	9,146
307 Malden, Essex	.....	9,877	95	.....	58	66	5,521
308 Manvers, Durham	2,758	15,113	.....	43	.....	.....	4,200
309 Mara, Ontario	444	14,870	45	.....	.....	.....	6,770
310 March, Carleton	458	3,804	.....	11	32	.....	.....
311 Mariposa, Victoria	1,868	29,515	.....	25	.....	.....	9,630
312 Markham, York	2,752	35,301	.....	.....	78	.....	.....
313 Marlborough, Carleton	.....	10,486	.....	.....	116	.....	810
314 Marmora and Lake, Hastings	890	8,527	36	13	66	.....	.....
315 Martland, Sudbury	403	1,525	26	1	7	.....	1,226
316 Maryborough, Wellington	226	21,542	.....	20	23	.....	2,500
317 Marysburgh N., Prince Edward	452	6,135	.....	.....	280	.....	1,550
318 Marysburgh, S., Prince Edward	170	5,846	.....	12	450	229	.....
319 Matchedash, Simcoe	478	1,700	.....	.....	.....	.....	.....
320 Matilda, Dundas	.....	26,009	.....	.....	.....	.....	38,356
321 Mattawan, Nipissing	34	404	.....	.....	.....	.....	81
322 Mayo, Hastings	428	1,538	.....	200	.....	.....	661
323 Medonte, Simcoe	2,019	18,377	.....	18	128	.....	.....
324 Medora and Wood, Muskoka	964	8,466	140	54	.....	.....	95
325 Melancthon, Dufferin	236	17,193	.....	11	2	.....	3,600
326 Mersea, Essex	1,844	37,224	.....	75	149	.....	5,000
327 Metcalfe, Middlesex	1,057	17,313	4	35	117	.....	.....
328 Middleton, Norfolk	3,354	13,785	50	314	95	.....	.....
329 Minden, Haliburton	84	4,076	49	.....	.....	.....	.....
330 Minto, Wellington	1,215	19,276	.....	57	22	651	2,750
331 Monaghan N., Peterborough	1,734	5,471	.....	.....	.....	.....	1,943
332 Monaghan S., Northumberland	203	5,340	.....	.....	.....	.....	.....
333 Monck, Muskoka	1,815	5,156	.....	4	.....	.....	.....
334 Monmouth, Haliburton	1,022	2,037	.....	13	.....	.....	.....
335 Mono, Dufferin	964	18,872	.....	.....	14	.....	.....
336 Montague, Lanark	1,491	11,690	24	114	10	.....	1,599

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County Grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	.....	1,750	22,096	644	100	182	1,973	.....	289
200	.....	.....	.....	.....	338	2,098	214	.....	65	34	.....	290
700	.....	.....	.....	.....	41	4,080	276	56	86	524	.....	291
.....	.....	.....	.....	7	691	27,443	813	30	352	5,221	.....	292
.....	.....	.....	.....	.....	704	4,176	690	35	155	2,776	.....	293
.....	.....	.....	.....	.....	161	2,180	297	3	87	321	.....	294
.....	772	3,678	115	.....	656	31,505	812	90	211	4,458	4,993	295
.....	.....	.....	.....	.....	464	4,994	468	41	101	473	64	296
.....	.....	.....	.....	.....	88	3,213	349	39	145	171	.....	297
.....	.....	.....	.....	.....	252	2,586	326	16	63	385	.....	298
.....	.....	20,000	237	.....	247	41,269	998	105	226	14,273	.....	299
.....	.....	.....	.....	.....	52	5,362	279	.....	91	894	.....	300
.....	.....	.....	.....	.....	1,071	5,987	304	5	110	1,684	.....	301
.....	.....	.....	.....	.....	144	3,193	263	.....	50	246	.....	302
.....	.....	.....	.....	.....	49	1,643	297	50	208	491	.....	303
.....	.....	.....	.....	.....	53	17,166	457	.....	188	310	.....	304
.....	16,021	.....	252	.....	126	38,448	1,206	151	558	4,941	2,738	305
.....	522	.....	.....	.....	634	39,719	1,445	754	473	8,023	.....	306
.....	3,744	.....	.....	.....	218	19,579	714	73	266	3,222	569	307
3,000	.....	.....	30	.....	300	25,444	1,001	.....	241	2,727	.....	308
2,500	.....	.....	.....	.....	97	24,726	908	80	188	3,683	.....	309
.....	.....	.....	.....	.....	166	4,471	443	.....	109	793	.....	310
.....	.....	.....	.....	.....	412	41,450	1,391	90	336	8,000	.....	311
.....	.....	.....	.....	.....	468	38,599	1,551	418	555	6,585	.....	312
.....	.....	.....	.....	.....	1,952	13,364	720	.....	130	453	.....	313
1,200	.....	.....	.....	100	136	10,968	610	.....	138	508	.....	314
.....	.....	.....	.....	.....	1,236	4,424	225	1	86	1,966	37	315
.....	.....	.....	.....	.....	167	24,478	876	7	380	3,187	.....	316
.....	.....	.....	.....	.....	103	8,520	385	.....	142	780	.....	317
.....	.....	.....	.....	.....	50	6,757	303	.....	96	421	.....	318
.....	.....	.....	.....	100	112	2,390	204	.....	34	151	.....	319
.....	376	.....	.....	.....	421	65,162	751	.....	237	2,683	.....	320
.....	.....	.....	.....	.....	26	545	245	.....	26	18	.....	321
.....	.....	.....	.....	263	49	3,139	260	.....	66	320	.....	322
.....	.....	.....	.....	.....	1,718	22,260	802	703	291	2,052	.....	323
.....	.....	.....	.....	.....	253	9,972	846	154	472	3,218	.....	324
.....	.....	.....	.....	.....	82	21,124	776	20	394	2,384	.....	325
.....	8,142	.....	80	21	532	53,067	1,532	33	700	4,207	.....	326
.....	409	.....	.....	.....	*3,135	22,070	619	43	216	5,683	.....	327
1,700	.....	.....	.....	75	546	19,919	895	.....	235	2,933	.....	328
.....	.....	.....	.....	.....	81	4,290	438	.....	83	459	.....	329
1,150	.....	.....	2	.....	372	25,495	1,081	.....	313	3,357	75	330
.....	.....	.....	.....	150	237	9,535	392	20	105	1,644	.....	331
.....	.....	.....	.....	.....	211	5,754	308	4	117	1,162	.....	332
.....	.....	.....	.....	.....	65	7,040	394	147	97	1,907	.....	333
.....	.....	.....	.....	.....	54	3,126	284	52	119	105	.....	334
.....	.....	.....	.....	.....	340	20,190	892	19	236	4,297	.....	335
.....	.....	.....	.....	.....	165	15,093	544	2	207	3,138	.....	336

* Including $2,500, Government Grant to drains.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.—*Continued.*						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
289 Luther W.	109	12	3,619	5,696	2,649	.....	.....
290 Lutterworth	4	5	159	1,472	.....	.....	.....
291 McDougall	12	15	.....	1,930	.....	.....	.....
292 McGillivray	73	15	7,147	8,086	756	.....	.....
293 McIrvine	.....	5	.....	.....	.....	.....	.....
294 McKellar	.....	42	.....	1,025	.....	.....	.....
295 McKillop	60	258	4,458	6,214	2,304	300	242
296 McKim	14	5	.....	829	.....	.....	.....
297 McLean and Ridout	376	58	.....	1,209	.....	.....	.....
298 McMurrich	53	5	.....	1,425	.....	.....	.....
299 McNab	20	146	7,221	7,092	.....	.....	.....
300 Macaulay	147	54	.....	1,751	.....	.....	.....
301 Macdonald and Meredith	74	10	.....	1,151	.....	.....	.....
302 Machar	37	6	.....	1,135	.....	.....	.....
303 Machin	.....	.....	.....	137	.....	.....	.....
304 Madoc	272	92	5,559	7,004	.....	.....	.....
305 Maidstone	129	91	399	6,905	7,579	.....	.....
306 Malahide	9	72	6,334	8,469	1,340	.....	.....
307 Malden	65	.....	3,531	2,976	3,757	.....	43
308 Manvers	447	5	3,183	9,311	.....	.....	.....
309 Mara	48	192	2,831	8,055	328	.....	.....
310 March	7	.....	.....	2,684	15	.....	.....
311 Mariposa	191	30	7,783	11,332	1,009	.....	.....
312 Markham	350	78	7,713	12,579	.....	.....	.....
313 Marlborough	.....	5	1,482	4,470	1,403	.....	.....
314 Marmora and Lake	16	339	2,893	4,834	.....	.....	.....
315 Martland	1	.....	.....	959	.....	.....	.....
316 Maryborough	45	9	7,408	8,952	359	.....	.....
317 Marysburgh N.	9	3	1,759	3,389	.....	.....	69
318 Marysburgh S.	.....	28	1,669	2,935	.....	.....	401
319 Matchedash	2	35	485	802	.....	.....	.....
320 Matilda	.....	298	3,722	9,678	1,810	.....	.....
321 Mattawan	.....	4	.....	152	.....	.....	.....
322 Mayo	.....	46	201	1,350	.....	.....	.....
323 Medonte	180	658	4,055	7,757	10	.....	.....
324 Medora and Wood	101	309	.....	3,704	.....	20	.....
325 Melancthon	25	38	3,453	8,801	406	.....	.....
326 Mersea	8	509	5,333	9,273	12,321	.....	.....
327 Metcalfe	45	44	4,201	3,578	3,067	.....	.....
328 Middleton	62	81	2,261	7,109	113	.....	.....
329 Minden	5	30	321	2,460	.....	.....	.....
330 Minto	66	136	5,587	8,843	592	.....	707
331 Monaghan N.	10	47	2,106	2,194	.....	.....	.....
332 Monaghan S.	19	29	1,691	2,218	.....	.....	.....
333 Monck	.....	117	.....	2,222	.....	.....	.....
334 Monmouth	23	68	201	1,641	.....	.....	.....
335 Mono	38	78	2,806	8,911	664	.....	.....
336 Montague	42	10	2,827	7,327	.....	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
423	1,227	.....	3,216	635	.....	327	20,812	1,284	450	.....	289
14	.....	.....	.....	30	.....	33	2,030	68	881	.....	290
.....	.....	.....	.....	.....	.....	47	2,946	1,134	1,194	.....	291
288	672	.....	3,217	199	.....	347	27,216	227	24	.....	292
132	.....	.....	.....	165	.....	8	3,966	210	2,551	.....	293
200	.....	.....	.....	42	.....	144	2,161	19	1,208	.....	294
335	1,382	664	1,000	1,415	.....	482	29,678	1,827	1,078	.....	295
272	.....	.....	647	199	.....	15	3,128	1,866	1,224	.....	296
.....	.....	95	350	110	.....	266	3,168	45	2,115	.....	297
.....	.....	.....	.....	1	.....	236	2,510	76	1,618	.....	298
567	.....	.....	5,401	251	.....	65	36,365	4,904	1,328	.....	299
86	.....	.....	1,374	84	.....	81	4,841	521	1,499	.....	300
259	.....	.....	1,500	128	.....	116	5,341	646	3,957	.....	301
302	.....	.....	600	90	.....	86	2,815	378	2,220	.....	302
.....	.....	.....	250	3	.....	24	1,460	183	1,254	.....	303
224	.....	1,542	.....	733	.....	30	16,411	755	7,565	.....	304
102	4,369	319	837	1,514	.....	674	32,512	5,936	23,666	.....	305
.....	822	229	10,453	464	.....	832	39,719	.....	1,704	.....	306
.....	1,417	.....	2,110	835	.....	1	19,579	.....	8,453	.....	307
630	.....	.....	4,200	243	.....	18	22,006	3,438	256	.....	308
271	.....	.....	6,442	324	.....	247	23,597	1,129	133	.....	309
.....	.....	.....	.....	.....	.....	8	4,059	412	3,043	.....	310
232	727	.....	9,500	632	.....	130	41,383	67	43	.....	311
200	.....	.....	.....	583	.....	385	30,997	7,602	3,028	.....	312
.....	435	.....	3,186	652	.....	230	13,166	198	3,273	.....	313
309	.....	.....	.....	18	.....	275	9,940	1,028	3,714	.....	314
.....	.....	.....	1,001	31	.....	46	4,353	71	1,481	.....	315
175	114	146	2,500	143	.....	24	24,325	153	1,182	.....	316
.....	.....	.....	1,550	36	.....	180	8,302	218	180	.....	317
.....	.....	.....	450	67	.....	40	6,410	347	.....	.....	318
100	.....	.....	.....	11	.....	.....	1,824	566	1,555	.....	319
.....	3,487	.....	39,999	2,250	.....	247	65,162	.....	2,516	.....	320
.....	.....	.....	80	2	.....	18	545	.....	525	.....	321
87	.....	.....	.....	40	.....	6	2,376	763	3,257	.....	322
231	341	229	.....	415	.....	43	17,767	4,493	3,056	.....	323
.....	.....	.....	95	45	.....	104	9,068	904	4,381	80	324
189	.....	.....	3,600	97	.....	151	20,334	790	1,295	.....	325
642	9,006	64	5,095	3,632	.....	186	52,541	526	31,600	.....	326
.....	677	2,209	.....	277	.....	780	21,439	631	5,319	.....	327
555	1,051	.....	.....	532	.....	438	16 265	3,654	2,237	.....	328
138	.....	.....	.....	52	.....	.....	3,986	304	2,628	.....	329
116	391	.....	2,750	355	.....	81	24,450	1,045	172	.....	330
147	.....	.....	2,479	143	.....	248	9,535	.....	1,891	.....	331
.....	.....	.....	.....	12	.....	51	5,611	143	270	.....	332
310	.....	.....	.....	112	.....	219	5,525	1,515	1,154	.....	333
50	.....	.....	.....	21	.....	61	2,625	501	475	.....	334
242	130	.....	.....	186	.....	136	18,635	1,555	.....	.....	335
.....	.....	.....	900	26	.....	70	15,093	.....	716	.....	336

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
289 Luther W.	.....	800	4,976	7,510
290 Lutterworth	.....	.....	919	1,868
291 McDougall	.....	112	700	3,140
292 McGillivray	.....	1,000	561	1,812
293 McIrvine	.....	120	3,707	6,588
294 McKellar	.....	575	545	2,347
295 McKillop	12,129	300	4,407	19,741
296 McKim	.....	165	3,321	6,576
297 McLean and Ridout	.....	1,637	.....	3,797
298 McMurrich	.....	496	159	2,349
299 McNab	.....	1,000	615	7,847
300 Macaulay	.....	1,110	291	3,421
301 Macdonald and Meredith	.....	815	2,229	7,647
302 Machar	.....	862	1,148	4,608
303 Machin	.....	.....	.....	1,437
304 Madoc	.....	1,000	365	9,685
305 Maidstone	.....	3,738	1,495	34,835
306 Malahide	.....	200	32	1,936
307 Malden	270	1,950	1,679	12,352
308 Manvers	.....	.....	3,857	7,551
309 Mara	.....	2,500	6,460	10,222
310 March	400	2,600	.....	6,455
311 Mariposa	.....	5,000	2,247	7,357
312 Markham	.....	1,000	5,723	17,353
313 Marlborough	.....	260	880	4,611
314 Marmora and Lake	.....	1,000	1,200	6,942
315 Martland	.....	90	26	1,668
316 Maryborough	.....	4,430	39	5,804
317 Marysburgh N.	6,968	1,000	.....	8,366
318 Marysburgh S.	10,455	850	.....	11,652
319 Matchedash	.....	.....	200	2,321
320 Matilda	.....	.....	11,085	13,601
321 Mattawan	.....	.....	.....	525
322 Mayo	.....	30	424	4,474
323 Medonte	.....	1,000	5,228	13,777
324 Medora and Wood	.....	1,970	320	7,655
325 Melancthon	.....	1,468	361	3,914
326 Mersea	.....	5,000	7,911	45,037
327 Metcalfe	.....	1,300	.....	7,250
328 Middleton	.....	1,400	3,435	10,726
329 Minden	.....	.....	771	3,703
330 Minto	1,119	1,000	7,209	10,545
331 Monaghan N.	.....	1,225	1,665	4,781
332 Monaghan S.	.....	.....	379	792
333 Monck	.....	.....	1,840	4,509
334 Monmouth	.....	100	300	1,376
335 Mono	.....	.....	661	2,216
336 Montague	.....	3,000	404	4,120

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	4,817	7,981	.....	.....	.....	82	12,880	289
.....	453	.....	673	.....	.....	.....	.....	25	1,151	290
.....	.....	.....	700	.....	.....	.....	.....	.....	700	291
.....	.....	.....	561	1,265	.....	.....	.....	.....	1,826	292
.....	510	.....	2,487	.....	.....	1,000	.....	1	3,998	293
.....	571	.....	500	.....	.....	.....	.....	22	1,093	294
.....	.....	4,664	3,742	12,658	4,640	.....	.....	.....	25,704	295
.....	591	.....	3,006	.....	.....	1,916	.....	133	5,646	296
.....	828	.....	.....	.....	2,064	321	.....	381	3,594	297
.....	1,132	.....	.....	.....	.....	.....	.....	8	1,140	298
.....	.....	.....	615	.....	20,000	.....	.....	220	20,835	299
.....	775	.....	291	.....	.....	993	.....	54	2,113	300
.....	750	.....	2,229	.....	.....	.....	.....	.....	2,979	301
.....	1,758	.....	1,148	.....	.....	.....	.....	.....	2,906	302
.....	.....	.....	.....	.....	.....	792	.....	.....	792	303
.....	.....	18,725	365	.....	.....	.....	.....	.....	19,090	304
3,580	7,400	.....	459	40,907	.....	.....	.....	881	53,227	305
.....	500	1,630	.....	3,420	.....	146	.....	907	6,603	306
.....	1,840	.....	.....	13,937	.....	5,537	.....	669	21,983	307
.....	.....	.....	3,844	.....	.....	.....	.....	50	3,894	308
.....	.....	.....	6,460	.....	.....	770	.....	.....	7,230	309
989	151	.....	.....	.....	.....	.....	.....	100	1,240	310
.....	.....	.....	893	8,542	.....	130	.....	.....	9,565	311
9,321	1,613	.....	5,428	.....	.....	.....	.....	1,000	17,362	312
.....	.....	.....	.....	10,058	.....	1,431	.....	.....	11,489	313
2,533	742	.....	1,200	.....	.....	.....	.....	861	5,336	314
.....	776	.....	.....	.....	.....	300	.....	594	1,670	315
.....	.....	.....	.....	956	823	.....	.....	307	2,086	316
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	317
.....	.....	.....	.....	.....	.....	1,278	.....	.....	1,278	318
501	961	.....	200	.....	.....	.....	.....	.....	1,662	319
.....	.....	.....	.....	22,324	.....	13,380	.....	170	35,874	320
.....	200	.....	.....	.....	.....	1	.....	76	277	321
176	2,390	.....	413	.....	.....	708	.....	180	3,867	322
.....	.....	.....	5,228	2,382	786	.....	.....	85	8,481	323
.....	1,650	.....	300	.....	.....	.....	.....	2,037	3,987	324
.....	.....	.....	.....	.....	.....	.....	.....	483	483	325
5,826	2,901	.....	4,220	65,377	3,471	5,062	.....	6,208	93,065	326
.....	.....	.....	.....	2,467	.....	.....	.....	825	3,292	327
81	995	.....	3,305	7,461	.....	.....	.....	91	11,933	328
.....	1,971	.....	723	.....	.....	.....	.....	.....	2,694	329
.....	11	.....	1,810	6,109	.....	.....	.....	100	8,030	330
.....	.....	.....	1,513	.....	.....	1,943	.....	224	3,680	331
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	332
.....	69	.....	1,840	.....	.....	.....	.....	192	2,101	333
.....	614	.....	300	.....	.....	.....	.....	86	1,000	334
.....	.....	.....	573	1,468	.....	.....	.....	188	2,229	335
.....	.....	.....	.....	.....	.....	699	.....	.....	699	336

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

	Township Municipalities and Counties in which located.	Receipts, 1909.						
		Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
		$	$		$	$	$	$
337	Monteagle & Herschel, Hastings	334	3,439	62	.....	.....	.....	.....
338	Moore, Lambton	2,700	37,548	.....	17	.....	.....	.....
339	Morley & Patullo, Rainy River	1,511	3,839	93	2	.....	.....	4,000
340	Mornington, Perth	8,692	26,068	442	16	174	.....	3,100
341	Morris, Huron	1,087	19,512	90	.....	24	.....	4,000
342	Morrison, Muskoka	892	2,169	.....	.....	11	.....	.....
343	Mosa, Middlesex	1,778	14,849	.....	.....	107	.....	.....
344	Moulton, Haldimand	.....	9,116	.....	118	246	160	.....
345	Mountain, Dundas	.....	27,522	.....	.....	.....	.....	953
346	Mulmur, Dufferin	1,500	16,629	.....	.....	5	.....	3,850
347	Murray, Northumberland	52	12,145	.....	5	8	.....	1,400
348	Muskoka, Muskoka	1,666	2,665	.....	.....	27	.....	.....
349	Nairn and Lorne, Sudbury	262	844	111	62	.....	.....	.....
350	Nassagaweya, Halton	147	10,913	.....	12	510	10	4,002
351	Neebing, Thunder Bay	581	10,485	.....	.....	180	.....	10,880
352	Neelon and Garson, Sudbury	464	2,944	15	.....	.....	.....	5,262
353	Nelson, Halton	3,482	17,371	42	.....	918	6,317	.....
354	Nepean, Carleton	780	25,963	.....	131	555	.....	654
355	Nepigon, Thunder Bay	.....	1,294	454	239	.....	.....	.....
356	Niagara, Lincoln	.....	14,708	.....	125	17	.....	5,300
357	Nichol, Wellington	.....	9,811	45	.....	33	.....	1,240
358	Nipissing, Parry Sound	361	2,085	46	6	.....	.....	.....
359	Nissouri E., Oxford	1,286	21,553	.....	309	92	.....	.....
360	Nissouri W., Middlesex	6,076	29,493	.....	.....	33	.....	4,000
361	Normanby, Grey	501	16,838	120	11	.....	.....	2,200
362	Norwich N., Oxford	2,906	22,179	.....	.....	167	.....	3,500
363	Norwich S., Oxford	1,226	15,790	.....	22	79	392	5,694
364	Nottawasaga, Simcoe	2,662	29,353	.....	7	.....	.....	3,000
365	Oakland, Brant	243	4,379	66	47	192	200	700
366	Oakley, Muskoka	213	1,485	9	.....	19	15	961
367	O'Connor, Thunder Bay	60	1,449	.....	.....	.....	.....	1,173
368	Olden, Frontenac	.....	5,787	.....	14	.....	.....	.....
369	Oliver, Thunder Bay	.....	4,933	9	67	.....	.....	4,524
370	Oneida, Haldimand	1,383	9,746	.....	2	15	.....	595
371	Onondaga, Brant	1,215	7,451	.....	4	15	.....	.....
372	Ops, Victoria	98	18,900	.....	.....	314	.....	4,100
373	Orford, Kent	4,149	26,628	87	15	117	.....	13,500
374	Orillia, Simcoe	2,845	15,685	.....	20	95	.....	7,965
375	Oro, Simcoe	4,580	20,574	.....	16	157	.....	.....
376	Osgoode, Carleton	.....	30,131	.....	20	162	.....	3,710
377	Osnabruck, Stormont	3,742	26,536	.....	.....	.....	.....	52,518
378	Osa, Frontenac	.....	3,688	80	.....	.....	.....	478
379	Osprey, Grey	2,975	15,867	.....	2	.....	.....	4,000
380	Otonabee, Peterborough	1,916	20,494	.....	103	10	.....	.....
381	Oxford-on-Rideau, Grenville	10	13,331	115	9	19	.....	3,500
382	Oxford E., Oxford	2,529	16,475	.....	327	199	.....	.....
383	Oxford N., Oxford	1,187	9,094	.....	374	21	.....	.....
384	Oxford W., Oxford	.....	13,623	.....	1,061	.....	.....	1,541

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	325	172	4,332	287	1	96	517	.....	337
1,800	2,011	.....	.....	.....	280	44,356	1,555	73	560	10,538	.....	338
.....	.....	.....	.....	.....	*3,196	12,641	374	.....	173	4,980	.....	339
.....	2,535	.....	.....	906	436	42,369	1,064	2	234	4,405	.....	340
.....	6,235	.....	133	.....	1,428	32,509	865	7	197	5,817	.....	341
.....	.....	.....	.....	.....	58	3,130	231	.....	212	420	.....	342
.....	8,678	.....	84	.....	361	25,857	784	5	318	2,042	.....	343
.....	.....	.....	.....	.....	415	10,055	590	239	434	641	.....	344
1,000	4,466	.....	.....	.....	201	34,142	1,088	373	232	3,964	.....	345
1,000	.....	.....	.....	200	425	23,609	929	39	224	3,775	.....	346
.....	.....	.....	.....	.....	512	14,122	569	85	218	1,952	193	347
.....	.....	.....	.....	.....	98	4,456	366	3	73	643	145	348
.....	.....	.....	.....	.....	298	1,577	296	5	145	476	13	349
.....	.....	.....	.....	.....	342	15,936	645	.....	234	1,208	113	350
.....	.....	.....	.....	.....	†2,377	24,503	1,300	278	388	10,234	.....	351
.....	.....	.....	.....	.....	718	9,403	460	.....	122	2,093	.....	352
.....	.....	.....	.....	.....	218	28,348	1,109	224	372	2,824	.....	353
.....	.....	.....	.....	.....	390	28,473	1,626	100	558	9,324	40	354
.....	.....	.....	.....	.....	350	2,337	547	180	277	359	.....	355
.....	.....	.....	.....	.....	330	20,480	614	84	217	4,378	.....	356
.....	.....	.....	.....	.....	271	11,400	722	18	211	1,097	.....	357
.....	.....	.....	.....	.....	22	2,520	248	10	63	323	54	358
.....	3,368	.....	73	303	358	27,342	660	85	225	4,912	.....	359
.....	2,016	.....	.....	.....	829	42,447	890	240	277	9,003	.....	360
.....	.....	.....	.....	1,000	1,188	21,858	875	364	261	2,642	124	361
2,500	3,999	.....	.....	304	1,308	36,863	767	.....	266	7,467	.....	362
.....	.....	.....	.....	157	343	23,703	609	116	311	6,634	.....	363
2,600	.....	.....	.....	6	733	38,361	1,580	8	790	4,858	.....	364
.....	.....	.....	.....	.....	181	6,008	379	35	152	816	150	365
1,800	.....	.....	.....	.....	133	4,635	308	70	148	773	250	366
800	.....	.....	.....	.....	1,153	4,635	256	.....	49	721	55	367
.....	.....	.....	.....	.....	122	5,923	470	23	48	398	.....	368
.....	.....	.....	.....	.....	982	10,515	504	.....	169	3,659	351	369
.....	.....	.....	.....	.....	133	11,874	421	2	158	1,569	.....	370
.....	.....	.....	.....	.....	27	8,712	499	.....	175	2,238	40	371
.....	.....	.....	.....	.....	212	23,624	842	60	311	4,478	20	372
.....	3,206	.....	.....	.....	1,031	48,733	1,562	175	380	6,178	800	373
2,000	.....	.....	.....	13	1,725	30,348	1,254	55	688	4,531	.....	374
.....	.....	.....	.....	.....	238	25,565	953	14	311	1,105	104	375
.....	7,911	.....	.....	.....	876	42,810	1,874	183	526	6,976	.....	376
.....	1,824	.....	7	4,000	948	89,575	1,136	.....	529	6,203	.....	377
.....	.....	.....	.....	.....	80	4,326	282	.....	83	1,056	18	378
.....	.....	.....	.....	.....	.....	22,844	1,008	140	237	2,969	18	379
.....	.....	.....	.....	.....	301	22,824	560	109	215	4,011	.....	380
.....	.....	.....	.....	.....	338	17,322	704	75	305	1,134	15	381
.....	5,014	.....	.....	.....	167	24,711	641	.....	181	5,076	16	382
.....	.....	.....	.....	295	385	11,356	557	.....	239	2,978	.....	383
.....	2,502	.....	.....	50	241	19,018	645	3,423	275	3,138	.....	384

* Including $3,126 Government Grant to roads.
† Including $1,800 Ontario Government Grant to Arthur Street Bridge.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.—*Continued.*						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
337 Monteagle and Herschel	144	15	556	2,086	.....	.....	.....
338 Moore	149	648	4,811	10,068	4,691	.....	.....
339 Morley and Patullo	275	5	.....	1,278	.....	.....	.....
340 Mornington	56	15	6,901	6,835	4,532	.....	.....
341 Morris	15	125	4,147	5,549	2,705	.....	.....
342 Morrison	.....	5	.....	1,200	.....	.....	.....
343 Mosa	9	38	5,515	4,907	3,618	.....	.....
344 Moulton	43	257	1,864	3,923	842	.....	569
345 Mountain	.....	265	2,864	12,299	2,570	.....	.....
346 Mulmur	70	5	2,600	9,964	.....	.....	.....
347 Murray	572	282	336	7,017	.....	.....	.....
348 Muskoka	.....	125	.....	1,885	.....	.....	.....
349 Nairn and Lorne	10	27	.....	373	.....	.....	.....
350 Nassagaweya	2	208	4,546	5,265	210	.....	8
351 Neebing	10	.....	.....	.....	.....	1,567	.....
352 Neelon and Garson	.....	.....	.....	1,965	.....	.....	.....
353 Nelson	11	569	6,783	8,137	.....	.....	5,780
354 Nepean	200	101	3,960	9,231	.....	.....	.....
355 Nepigon	.....	.....	.....	.....	.....	.....	.....
356 Niagara	22	40	3,688	4,596	.....	.....	.....
357 Nichol	52	.....	3,266	3,473	4	.....	.....
358 Nipissing	20	52	.....	1,210	.....	.....	.....
359 Nissouri E.	163	.....	5,758	6,185	3,300	.....	.....
360 Nissouri W.	149	10	9,423	8,292	216	.....	.....
361 Normanby	396	328	3,879	8,473	.....	.....	.....
362 Norwich N.	281	17	3,968	8,081	3,622	.....	.....
363 Norwich S.	100	28	3,117	5,391	107	.....	.....
364 Nottawasaga	47	196	8,255	14,322	.....	.....	.....
365 Oakland	23	96	779	2,003	.....	.....	200
366 Oakley	31	5	.....	2,277	.....	.....	19
367 O'Connor	.....	.....	.....	652	.....	40	.....
368 Olden	287	201	1,111	2,336	.....	.....	.....
369 Oliver	45	30	.....	1,364	.....	75	.....
370 Oneida	17	109	2,933	4,082	.....	.....	.....
371 Onondaga	10	131	1,521	2,643	.....	.....	.....
372 Ops	56	3	4,943	6,299	589	.....	.....
373 Orford	33	82	305	7,599	4,817	.....	.....
374 Orillia	87	421	2,835	7,942	.....	.....	.....
375 Oro	42	45	11,287	11,002	37	.....	.....
376 Osgoode	18	.....	4,493	11,796	1,024	84	891
377 Osnabruck	28	366	3,417	13,916	10,382	.....	.....
378 Oso	46	149	500	2,185	.....	.....	.....
379 Osprey	20	17	2,482	7,407	589	.....	.....
380 Otonabee	31	221	7,352	7,917	.....	.....	.....
381 Oxford-on-Rideau	30	5	2,727	7,153	222	30	.....
382 Oxford E.	47	5	4,169	4,397	6,511	.....	.....
383 Oxford N.	240	60	2,515	3,237	483	.....	.....
384 Oxford W.	52	80	3,138	4,504	2,423	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
287	.....	.....	.....	101	.....	.....	4,090	242	5,857	.....	337
200	6,858	.....	.....	1,729	.....	466	42,346	2,010	12,901	.....	338
.....	.....	.....	4,700	83	.....	43	11,911	730	2,281	.....	339
285	2,987	2,799	3,100	1,785	24	*2,447	37,471	4,898	.....	.....	340
320	1,116	138	4,000	949	.....	70	26,020	6,489	1,495	.....	341
.....	.....	.....	.....	.....	.....	.....	2,068	1,062	647	.....	342
.....	1,119	.....	2,800	227	.....	†2,433	23,815	2,042	12,665	.....	343
.....	.....	.....	393	75	.....	185	10,055	.....	.....	.....	344
176	4,288	.....	2,653	3,058	.....	312	34,142	.....	1,822	.....	345
380	.....	.....	3,850	197	.....	22	22,055	1,554	195	.....	346
150	.....	.....	1,400	88	.....	499	13,361	761	2,854	.....	347
43	.....	.....	.....	16	.....	67	3,366	1,090	675	.....	348
.....	.....	.....	.....	1	.....	29	1,375	202	3,486	.....	349
.....	.....	.....	3,442	.....	.....	55	15,936	.....	4,065	.....	350
.....	.....	.....	9,400	1,143	.....	116	24,436	67	3,206	7,447	351
.....	.....	.....	4,650	.....	.....	95	9,385	18	2,171	.....	352
.....	.....	153	.....	40	.....	429	26,431	1,917	923	.....	353
509	532	889	.....	1,040	.....	223	28,333	140	24,522	.....	354
.....	.....	.....	.....	3	.....	774	2,140	197	817	.....	355
.....	.....	.....	6,260	182	.....	143	20,224	256	1,070	.....	356
180	.....	.....	2,241	24	.....	112	11,400	.....	4,132	.....	357
105	.....	.....	.....	24	.....	.....	2,109	411	1,901	.....	358
246	497	1,370	.....	2,045	.....	228	25,674	1,668	486	.....	359
.....	211	.....	2,060	127	.....	119	31,017	11,430	4,591	.....	360
.....	.....	.....	2,200	31	.....	377	19,950	1,908	.....	.....	361
1,209	2,310	80	3,500	508	.....	280	32,356	4,507	241	.....	362
.....	17	.....	5,665	178	.....	1,270	23,543	160	24	.....	363
218	.....	.....	3,000	266	.....	428	33,968	4,393	902	.....	364
.....	.....	.....	800	.....	.....	66	5,499	509	8	.....	365
64	.....	.....	405	12	.....	7	4,369	266	1,189	.....	366
.....	.....	.....	1,649	27	.....	1,153	4,602	33	3,868	40	367
.....	.....	.....	122	.....	.....	51	5,047	876	1,422	.....	368
60	.....	.....	3,715	316	.....	32	10,320	195	3,817	1,305	369
600	.....	.....	595	107	.....	109	10,702	1,172	.....	.....	370
.....	.....	998	.....	40	.....	31	8,326	386	222	.....	371
.....	350	717	4,100	550	.....	133	23,451	173	18	.....	372
381	5,056	467	13,500	891	.....	747	42,973	5,760	831	.....	373
575	338	.....	7,965	862	.....	153	27,706	2,642	1,096	.....	374
403	.....	.....	.....	208	.....	53	25,564	1	3,372	.....	375
661	4,617	1,671	4,599	3,276	.....	121	42,810	.....	7,762	394	376
457	4,139	785	35,908	3,813	.....	192	81,271	8,304	3,747	.....	377
.....	.....	.....	.....	.....	.....	7	4,326	.....	1,831	.....	378
676	170	.....	4,000	486	.....	217	20,436	2,408	580	.....	379
95	.....	.....	.....	84	.....	35	20,630	2,194	654	.....	380
525	118	.....	3,500	241	.....	211	16,995	327	1,604	639	381
.....	1,716	.....	.....	426	.....	937	24,122	589	1,156	.....	382
.....	.....	.....	.....	3	.....	217	10,529	827	3	.....	383
.....	434	.....	419	326	.....	161	19,018	.....	613	.....	384

* Including $2,351 to other municipalities as share of drain expenses.
† Including $2,183 to other municipalities as share of drain expenses.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
337 Monteagle and Herschel	.....	.....	1,813	7,912
338 Moore	.....	5,000	41,533	61,444
339 Morley and Patullo	.....	690	725	4,426
340 Mornington	.....	.....	3,215	8,113
341 Morris	.....	1,490	1,840	11,314
342 Morrison	.....	250	.....	1,959
343 Mosa	.....	.....	.....	14,707
344 Moulton	4,642	.....	.....	4,642
345 Mountain	.....	1,000	1,000	3,822
346 Mulmur	.....	900	1,805	4,454
347 Murray	.....	2,000	1,350	6,965
348 Muskoka	.....	.....	288	2,053
349 Nairn and Lorne	.....	1,250	.....	4,938
350 Nassagaweya	9,049	2,100	4	15,218
351 Neebing	.....	744	3,957	15,421
352 Neelon and Garson	.....	.....	.....	2,189
353 Nelson	26,895	2,225	500	32,460
354 Nepean	9,500	5,000	7,188	46,350
355 Nepigon	.....	12	659	1,685
356 Niagara	.....	200	.....	1,526
357 Nichol	.....	.....	360	4,492
358 Nipissing	.....	150	165	2,627
359 Nissouri E.	20,000	.....	4,476	26,630
360 Nissouri W.	.....	.....	.....	16,021
361 Normanby	.....	1,835	85	3,828
362 Norwich N.	.....	150	2,512	7,410
363 Norwich S.	89	2,420	.....	2,693
364 Nottawasaga	.....	765	7,520	13,580
365 Oakland	4,544	2,500	.....	7,561
366 Oakley	104	250	1,971	3,780
367 O'Connor	.....	55	760	4,756
368 Olden	.....	1,000	115	3,413
369 Oliver	1,250	2,303	996	9,863
370 Oneida	.....	1,000	1,500	3,672
371 Onondaga	.....	3,300	.....	3,908
372 Ops	.....	1,000	814	2,005
373 Orford	.....	6,240	1,531	14,362
374 Orillia	.....	925	15,184	19,847
375 Oro	.....	1,900	4,005	9,278
376 Osgoode	20,075	5,800	8,956	42,987
377 Osnabruck	.....	1,500	10,670	24,221
378 Oso	.....	375	8	2,214
379 Osprey	.....	300	5,275	8,563
380 Otonabee	.....	3,000	475	6,323
381 Oxford-on-Rideau	.....	6,000	101	8,671
382 Oxford E.	.....	600	9,621	11,966
383 Oxford N.	.....	270	209	1,309
384 Oxford W.	.....	1,035	6,965	8,613

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
550	3,146	.....	1,813	.....	.....	.....	.....	465	5,974	337
4,539	4,644	.....	2,300	40,909	.....	.....	.....	2,810	55,202	338
.....	986	.....	725	.....	.....	.....	.....	.....	1,711	339
.....	.....	14,133	3,215	28,166	.....	.....	.....	206	45,720	340
.....	46	2,863	1,840	18,493	.....	.....	.....	.....	23,242	341
.....	750	.....	.....	.....	.....	.....	.....	.....	750	342
4,940	.....	.....	.....	11,119	.....	.....	.....	107	16,166	343
.....	40	.....	.....	.....	.....	2,664	.....	.....	2,704	344
.....	.....	.....	1,000	51,072	.....	5,000	.....	116	57,188	345
613	94	.....	1,805	.....	.....	.....	.....	302	2,814	346
2,872	.....	.....	1,200	.....	.....	.....	.....	.....	4,072	347
.....	82	.....	253	.....	.....	.....	.....	100	435	348
.....	.....	.....	.....	.....	.....	300	.....	.....	300	349
.....	.....	.....	.....	.....	.....	560	.....	10	570	350
.....	.....	.....	.....	.....	18,500	2,880	.....	1,252	22,632	351
.....	575	.....	.....	.....	.....	4,612	.....	205	5,392	352
.....	.....	.....	.....	.....	515	.....	.....	.....	515	353
4,201	14,980	.....	7,188	1,595	10,229	654	.....	1,697	40,544	354
.....	900	.....	.....	.....	.....	.....	.....	64	964	355
.....	1,953	.....	.....	.....	.....	800	.....	181	2,934	356
.....	.....	.....	360	.....	.....	1,240	.....	249	1,849	357
.....	168	.....	165	.....	.....	.....	.....	.....	333	358
.....	.....	18,630	3,666	4,070	.....	.....	.....	1,066	27,432	359
8,440	60	.....	.....	1,805	.....	4,080	.....	.....	14,385	360
.....	499	.....	.....	.....	.....	.....	.....	.....	499	361
.....	.....	.....	2,500	6,768	920	.....	.....	496	10,684	362
.....	.....	.....	.....	89	.....	29	.....	69	187	363
.....	1,290	.....	6,661	.....	.....	.....	.....	136	8,087	364
.....	.....	.....	.....	.....	.....	700	.....	.....	700	365
.....	292	.....	1,940	.....	.....	886	.....	98	3,216	366
.....	1,346	.....	800	.....	.....	700	.....	.....	2,846	367
.....	274	.....	.....	.....	.....	.....	.....	.....	274	368
.....	712	.....	996	.....	2,000	1,600	.....	100	5,408	369
.....	.....	.....	1,500	.....	.....	.....	.....	.....	1,500	370
.....	.....	.....	.....	.....	550	.....	.....	.....	550	371
.....	40	8,952	.....	4,214	.....	.....	.....	321	13,527	372
3,126	1,033	683	.....	9,703	267	.....	.....	2,332	17,144	373
3,827	6,186	.....	3,963	9,155	.....	.....	.....	150	23,281	374
72	.....	.....	3,956	.....	.....	.....	.....	165	4,193	375
.....	.....	.....	4,302	50,453	8,361	22,279	.....	102	85,497	376
.....	.....	.....	1,091	51,966	4,430	34,510	.....	2,240	94,237	377
943	.....	.....	.....	.....	.....	888	.....	108	1,939	378
.....	.....	.....	5,275	1,628	.....	.....	.....	335	7,238	379
.....	.....	.....	475	.....	.....	.....	.....	495	970	380
.....	.....	.....	.....	2,569	.....	.....	.....	87	2,656	381
.....	20	.....	.....	8,166	.....	.....	.....	1,504	9,690	382
.....	.....	.....	.....	.....	.....	.....	.....	1,624	1,624	383
.....	.....	.....	.....	5,557	.....	1,541	.....	.....	7,098	384

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

	Township Municipalities and Counties in which Located.	Receipts, 1909.						
		Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
		$	$	$	$	$	$	$
385	Paipoonge, Thunder Bay	.....	11,067	92	7	17	2,700	4,568
386	Pakenham, Lanark	1,711	10,511	168	4	20	.....	.....
387	Palmerston & Canonto, Frontenac.	138	2,676	40	.....	.....	.....	.....
388	Papineau, Nipissing	112	1,149	.....	.....	.....	.....	.....
389	Peel, Wellington	2,214	26,356	.....	.....	.....	.....	2,500
390	Pelee Island, Essex	89	14,319	57	38	441	1,000	4,749
391	Pelham, Welland	273	13,374	.....	4	761	1,458	.....
392	Pembroke, Renfrew	345	2,243	.....	.....	.....	.....	.....
393	Percy, Northumberland	329	14,067	38	76	.....	.....	3,850
394	Perry, Parry Sound	700	3,752	146	.....	.....	.....	300
395	Petewawa & McKay, Renfrew	.....	1,531	122	10	.....	.....	.....
396	Pickering, Ontario	3,685	31,480	.....	.....	.....	.....	5,900
397	Pilkington, Wellington	159	10,229	54	.....	13	.....	1,000
398	Pittsburgh, Frontenac	915	17,037	4	21	20	.....	2,000
399	Plantagenet N., Prescott	2,255	14,912	473	2	.....	.....	.....
400	Plantagenet S., Prescott	1,166	12,589	368	.....	.....	.....	.....
401	Plummer Addl., Algoma	.....	3,069	.....	1	.....	1,000	500
402	Plympton, Lambton	3,171	42,261	62	2	.....	.....	.....
403	Portland, Frontenac	4,452	16,283	4	45	42	.....	3,000
404	Prince, Algoma	497	1,668	.....	.....	.....	.....	525
405	Proton, Grey	4,670	15,052	.....	.....	47	.....	2,500
406	Puslinch, Wellington	108	18,970	108	17	929	1,340	8
407	Radcliffe, Renfrew	366	1,025	105	.....	.....	.....	.....
408	Raglan, Renfrew	234	2,571	.....	15	1	.....	.....
409	Rainham, Haldimand	758	9,171	200	28	173	950	.....
410	Raleigh, Kent	4,509	45,006	.....	57	158	475	327
411	Rama, Ontario	182	4,983	.....	.....	.....	.....	1,600
412	Ramsay, Lanark	1,708	14,721	96	.....	634	11,504	.....
413	Ratter and Dunnett, Sudbury	344	3,116	242	60	.....	.....	.....
414	Rawdon, Hastings	1,064	24,231	.....	23	20	.....	.....
415	Rayside, Sudbury	33	2,188	48	.....	.....	.....	3,621
416	Reach, Ontario	588	19,200	.....	.....	.....	.....	6,322
417	Richmond, Lennox and Addington.	83	16,133	.....	.....	703	3,673	600
418	Rochester, Essex	6,578	17,331	180	17	174	.....	1,000
419	Rolph, W. and B., Renfrew	151	4,082	51	21	31	.....	.....
420	Romney, Kent	270	19,060	.....	998	169	.....	5,248
421	Ross, Renfrew	1,337	9,297	.....	21	.....	.....	900
422	Roxborough, Stormont	1,217	34,215	176	23	.....	6,158	21,508
423	Russell, Russell	1,863	26,507	375	.....	137	.....	3,000
424	Ryde, Muskoka	166	1,711	8	.....	.....	.....	.....
425	Ryerson, Parry Sound	329	2,794	2	.....	13	.....	300
426	St. Edmund, Bruce	262	2,315	.....	12	.....	.....	.....
427	St. Joseph, Algoma	805	5,104	10	68	45	.....	500
428	St. Vincent, Grey	1,970	17,950	.....	14	.....	.....	5,400
429	Salter, May and Harrow, Sudbury.	345	3,607	.....	.....	32	.....	.....
430	Saltfleet, Wentworth	122	25,068	.....	56	17	3	5,000
431	Sandfield, Manitoulin	322	826	.....	.....	.....	.....	.....
432	Sandwich E., Essex	5	19,079	638	2	90	.....	4,000
433	Sandwich S., Essex	389	13,275	90	11	74	.....	6,854
434	Sandwich W., Essex	1,734	19,513	225	15	21	.....	4,073
435	Sarawak, Grey	2,527	5,261	.....	.....	466	1,010	1,350

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
.....	.....	3,000	.....	.....	*2,524	23,975	551	29	405	4,345	.....	385
.....	.....	.....	.....	.....	124	12,538	515	.....	321	1,316	.....	386
.....	.....	.....	.....	63	96	3,013	331	.....	129	375	.....	387
.....	.....	.....	.....	.....	17	1,278	214	.....	15	63	.....	388
.....	.....	.....	.....	15	651	31,736	790	67	322	4,076	.....	389
.....	.....	.....	.....	.....	84	20,777	639	433	513	711	.....	390
.....	.....	.....	.....	.....	328	16,198	720	.....	277	3,990	.....	391
.....	.....	.....	.....	.....	107	2,695	260	.....	47	300	.....	392
5,500	.....	.....	.....	.....	200	24,060	685	.....	351	2,967	35	393
700	.....	.....	.....	.....	320	5,918	457	.....	68	618	.....	394
.....	.....	.....	.....	.....	375	2,038	242	.....	83	46	.....	395
.....	.....	.....	.....	.....	246	41,311	1,500	.....	667	7,479	1,165	396
.....	.....	.....	.....	110	103	11,668	573	.....	127	2,675	.....	397
.....	.....	.....	.....	.....	311	20,308	701	32	321	3,214	.....	398
.....	.....	.....	.....	.....	113	17,755	1,024	11	171	4,561	.....	399
.....	.....	.....	.....	.....	110	14,233	807	180	200	2,037	.....	400
.....	.....	.....	.....	.....	61	4,631	255	.....	45	742	.....	401
.....	.....	.....	.....	.....	575	46,071	973	216	282	7,379	.....	402
.....	.....	.....	.....	859	253	24,938	510	.....	263	4,348	.....	403
.....	.....	.....	.....	.....	675	3,365	264	.....	72	1,479	.....	404
.....	.....	.....	.....	.....	275	22,544	781	18	265	3,314	45	405
.....	.....	.....	.....	.....	174	21,654	866	.....	293	4,759	.....	406
.....	.....	.....	.....	.....	25	1,521	164	.....	46	61	.....	407
.....	.....	.....	.....	.....	73	2,894	233	.....	58	36	.....	408
.....	.....	.....	.....	.....	26	11,306	405	.....	179	1,064	225	409
7,926	2,669	.....	42	375	810	62,354	1,360	461	1,401	2,510	341	410
.....	.....	.....	.....	300	318	7,383	502	91	226	1,196	39	411
.....	.....	.....	.....	.....	62	28,725	740	.....	210	4,228	.....	412
800	.....	.....	.....	.....	38	4,600	443	11	134	206	.....	413
.....	.....	1,400	.....	45	166	26,949	676	129	140	2,300	.....	414
500	.....	.....	.....	.....	271	6,661	288	1	71	378	.....	415
.....	.....	.....	.....	.....	254	26,364	1,005	.....	242	3,754	290	416
.....	.....	.....	.....	.....	299	21,491	606	528	244	1,835	.....	417
.....	566	4,200	140	.....	†6,442	36,628	1,156	168	411	7,515	2,958	418
.....	.....	.....	.....	.....	45	4,381	382	.....	32	45	.....	419
.....	20,260	.....	499	25	377	46,906	1,142	459	266	2,053	.....	420
1,057	.....	.....	.....	.....	117	12,729	391	2	151	1,376	.....	421
.....	.....	.....	.....	.....	‡2,341	65,638	697	1,901	448	4,432	.....	422
3,000	5,800	.....	140	.....	235	41,057	1,049	.....	347	2,693	.....	423
.....	.....	.....	.....	.....	46	1,931	213	86	44	235	.....	424
.....	.....	.....	.....	.....	39	3,477	360	30	76	565	.....	425
.....	.....	.....	.....	139	39	2,767	288	.....	127	409	.....	426
.....	.....	.....	.....	.....	1,004	7,536	388	.....	177	1,739	.....	427
.....	.....	.....	.....	.....	347	25,681	900	.....	415	4,435	.....	428
.....	.....	.....	.....	.....	11	3,995	302	.....	70	198	.....	429
.....	.....	.....	.....	.....	354	30,620	1,659	354	377	4,557	20	430
.....	.....	.....	.....	.....	.....	1,148	107	1	41	129	.....	431
.....	5,750	4,298	.....	18	‖3,380	37,260	1,427	700	349	9,343	25	432
.....	4,881	.....	.....	37	1,029	26,640	662	175	444	4,811	.....	433
.....	3,924	4,200	.....	.....	550	34,255	721	118	325	7,486	.....	434
.....	.....	.....	.....	.....	794	11,408	538	64	112	700	.....	435

* Including $2,257 Government Grant for roads. † Including $5,710 Government Grant for dredging Ruscombe River. ‡ Including $2,234, various receipts for drainage. ‖ Including $3,188 settlement, W. A. T. & E. Railway

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.—*Continued.*						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
385 Palpoonge	.....	25	.....	2,000	.....	3,988	2,761
386 Pakenham	.....	40	2,622	4,582	.....	.....	.....
387 Palmerston and Canonto	.....	41	538	1,023	.....	.....	.....
388 Papineau	.....	23	.....	925	.....	.....	.....
389 Peel	38	53	8,084	11,103	215	.....	.....
390 Pelee Island	26	10	.....	1,713	5,255	.....	50
391 Pelham	29	53	3,200	5,729	.....	.....	1,309
392 Pembroke	.....	.....	579	1,243	.....	.....	.....
393 Percy	42	76	2,705	12,724	.....	.....	.....
394 Perry	31	23	.....	3,122	.....	.....	.....
395 Petewawa and McKay	12	37	186	836	.....	.....	.....
396 Pickering	603	171	7,987	12,086	.....	.....	.....
397 Pilkington	41	35	3,122	3,115	.....	.....	.....
398 Pittsburgh	59	40	1,025	6,283	95	.....	.....
399 Plantagenet N.	160	318	2,539	8,084	.....	.....	.....
400 Plantagenet S.	86	61	2,500	7,165	178	57	.....
401 Plummer Add.	.....	10	.....	1,279	.....	.....	.....
402 Plympton	98	68	8,159	9,349	3,011	.....	.....
403 Portland	43	331	4,539	5,137	.....	.....	.....
404 Prince	.....	10	.....	264	.....	.....	.....
405 Proton	82	21	2,902	7,326	317	.....	.....
406 Puslinch	88	83	4,505	6,969	.....	.....	1,366
407 Radcliffe	.....	.....	112	902	.....	.....	.....
408 Raglan	146	.....	434	1,808	.....	.....	.....
409 Rainham	13	21	2,966	4,764	.....	.....	954
410 Raleigh	78	608	.....	17,701	10,465	.....	1,225
411 Rama	2	17	632	2,117	.....	.....	.....
412 Ramsay	25	5	3,802	5,697	.....	1,550	.....
413 Ratter and Dunnett	61	93	.....	2,016	.....	.....	.....
414 Rawdon	1,156	10	8,579	8,982	.....	.....	2
415 Rayside	10	.....	.....	1,233	181	.....	.....
416 Reach	40	175	4,936	9,418	.....	.....	.....
417 Richmond	23	474	6,626	6,532	.....	.....	3,700
418 Rochester	108	214	2,393	5,128	7,872	.....	.....
419 Rolph, Wylie and Buchanan	.....	.....	405	2,424	.....	132	.....
420 Romney	128	236	1,239	5,144	19,729	.....	.....
421 Ross	21	.....	2,294	6,354	.....	.....	.....
422 Roxborough	146	185	2,956	9,040	15,099	.....	4,604
423 Russell	553	32	2,984	12,300	4,337	1,682	.....
424 Ryde	29	29	.....	983	.....	.....	.....
425 Ryerson	69	22	.....	1,780	.....	.....	.....
426 St. Edmund	41	4	94	579	.....	.....	.....
427 St. Joseph	19	52	.....	2,198	.....	215	.....
428 St. Vincent	19	104	3,099	8,520	23	.....	.....
429 Salter, May and Harrow	10	.....	.....	2,347	.....	59	.....
430 Saltfleet	425	500	6,047	7,995	134	673	.....
431 Sandfield	.....	40	.....	734	.....	.....	.....
432 Sandwich E.	124	379	2,403	6,418	4,161	.....	.....
433 Sandwich S.	6	52	1,708	3,082	6,915	.....	.....
434 Sandwich W.	112	156	2,229	6,398	3,921	.....	.....
435 Sarawak	43	102	437	3,109	.....	1,057	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	.....	239	7,213	1,059	.....	1,360	23,975	.....	5,913	4,307	385
.....	.....	729	.....	487	.....	33	10,645	1,893	365	.....	386
.....	.....	100	.....	*35	.....	65	2,637	376	527	.....	387
.....	.....	.....	.....	.....	.....	.....	1,240	38	778	.....	388
312	.....	532	2,500	126	.....	392	28,610	3,126	14	.....	389
.....	941	1,097	7,360	787	.....	4	19,539	1,238	10,643	.....	390
.....	.....	.....	.....	7	.....	148	15,462	736	774	.....	391
.....	.....	.....	.....	.....	.....	4	2,433	262	1,180	.....	392
.....	.....	.....	3,850	95	.....	105	23,635	425	592	.....	393
227	.....	.....	400	18	.....	55	5,019	899	3,013	.....	394
.....	.....	.....	31	.....	.....	22	1,495	543	333	.....	395
.....	.....	.....	6,933	60	.....	348	38,999	2,312	1,553	.....	396
234	.....	.....	1,000	65	.....	123	11,110	558	1,169	.....	397
.....	.....	.....	3,540	257	.....	30	15,597	4,711	3,000	.....	398
98	.....	.....	.....	274	.....	278	17,518	237	9,154	.....	399
.....	.....	.....	.....	105	.....	126	13,502	731	6,348	412	400
353	.....	177	525	285	.....	.....	3,671	960	647	.....	401
266	5,182	.....	.....	898	.....	581	36,462	9,609	2,067	.....	402
.....	.....	.....	2,600	85	.....	169	18,025	6,913	530	.....	403
.....	.....	.....	350	4	.....	215	2,658	707	1,545	.....	404
609	986	.....	2,500	602	.....	501	20,269	2,275	4,113	106	405
368	.....	100	1,913	192	.....	4	21,506	148	1,870	.....	406
.....	.....	.....	.....	.....	.....	9	1,294	227	1,476	.....	407
.....	.....	.....	.....	.....	.....	4	2,719	175	2,266	.....	408
.....	.....	.....	.....	.....	.....	62	10,653	653	.....	.....	409
.....	13,091	870	325	3,617	.....	1,132	55,185	7,169	15,486	.....	410
109	.....	.....	1,500	83	.....	152	6,666	717	2,964	.....	411
.....	.....	11,500	.....	464	.....	102	28,323	402	272	.....	412
124	.....	.....	.....	62	.....	.....	3,150	1,450	2,393	.....	413
422	.....	.....	.....	148	.....	26	22,570	4,379	5,852	.....	414
282	.....	.....	4,021	154	.....	10	6,629	32	2,802	.....	415
.....	.....	.....	6,000	144	.....	154	26,158	206	195	.....	416
.....	.....	.....	600	50	.....	171	21,389	102	4,497	.....	417
102	3,015	892	1,000	1,165	.....	253	34,350	2,278	1,957	.....	418
.....	.....	.....	.....	56	.....	7	3,483	898	2,218	1,150	419
464	4,343	1,542	7,798	1,875	.....	309	46,727	179	17,333	.....	420
319	.....	186	600	278	.....	74	12,046	683	4,948	.....	421
57	6,565	.....	10,554	4,986	.....	474	62,144	3,494	18,550	.....	422
104	3,080	.....	3,097	1,949	.....	21	34,228	6,829	6,910	5,440	423
153	.....	.....	.....	30	.....	29	1,831	100	1,176	.....	424
46	.....	.....	.....	9	.....	52	3,009	468	2,286	.....	425
.....	.....	.....	.....	9	.....	472	2,023	744	2,859	.....	426
141	.....	51	500	209	.....	114	5,803	1,733	1,616	1,297	427
586	.....	.....	5,400	381	.....	29	23,911	1,770	199	.....	428
.....	.....	.....	.....	75	.....	26	3,087	908	1,388	1,089	429
.....	.....	.....	5,000	910	.....	396	29,047	1,573	260	3,519	430
.....	.....	.....	.....	.....	.....	.....	1,052	96	212	.....	431
.....	3,730	822	5,000	2,133	.....	245	37,259	1	21,908	.....	432
.....	4,606	.....	3,000	1,111	.....	68	26,640	.....	10,369	.....	433
.....	3,041	569	7,033	1,085	.....	540	33,734	521	19,486	.....	434
112	.....	1,010	1,000	590	.....	*2,460	11,334	74	362	6,233	435

* Including $2,416 paid to Owen Sound to adjust accounts.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
385 Paipoonge	2,761	3,325	3,690	19,996
386 Pakenham	.....	500	.....	2,758
387 Palmerston and Canonto	.....	200	.....	1,103
388 Papineau	.....	.....	.....	816
389 Peel	.....	.....	798	3,938
390 Pelee Island	2,176	400	51,914	66,371
391 Pelham	17,766	5,400	908	25,584
392 Pembroke	.....	150	.....	1,592
393 Percy	.....	8,000	5,518	14,535
394 Perry	.....	234	884	5,030
395 Petewawa and McKay	.....	.....	.....	876
396 Pickering	.....	3,900	520	8,285
397 Pilkington	.....	.....	850	2,577
398 Pittsburgh	.....	2,400	42	10,153
399 Plantagenet N.	.....	2,700	2,046	14,137
400 Plantagenet S.	.....	800	238	8,529
401 Plummer Add.	.....	125	3,536	5,268
402 Plympton	.....	1,350	2,282	15,308
403 Portland	1,750	2,000	.....	11,193
404 Prince	.....	498	.....	2,750
405 Proton	.....	.....	4,867	11,361
406 Puslinch	10,075	2,500	2,632	17,225
407 Radcliffe	.....	.....	.....	1,703
408 Raglan	.....	800	.....	3,241
409 Rainham	4,646	1,525	.....	6,824
410 Raleigh	750	3,300	21,905	48,610
411 Rama	.....	1,180	591	5,452
412 Ramsay	*8,754	500	.....	9,928
413 Ratter and Dunnett	.....	.....	1,820	5,663
414 Rawdon	12	1,200	2,087	13,530
415 Rayside	.....	400	218	3,452
416 Reach	.....	2,410	242	3,053
417 Richmond	17,851	3,150	.....	25,600
418 Rochester	.....	8,219	6,253	18,707
419 Rolph, Wylie and Buchanan	.....	100	319	4,685
420 Romney	.....	1,100	6,705	25,317
421 Ross	.....	400	4,467	10,498
422 Roxborough	4,604	500	7,449	34,597
423 Russell	.....	1,000	11,447	31,626
424 Ryde	.....	2,060	345	3,681
425 Ryerson	.....	200	99	3,053
426 St. Edmund	.....	.....	.....	3,603
427 St. Joseph	.....	2,120	1,324	8,090
428 St. Vincent	600	.....	5,071	7,640
429 Salter, May and Harrow	.....	130	411	3,926
430 Saltfleet	6,000	3,000	11,981	26,333
431 Sandfield	.....	.....	.....	308
432 Sandwich E.	.....	800	100	22,809
433 Sandwich S.	.....	1,425	5,843	17,637
434 Sandwich W.	.....	1,100	.....	21,107
435 Sarawak	747	384	1,598	9,398

*Add $380 for increase in value of bank stock

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
.....	600	.....	7,500	.....	9,761	1,343	.....	2,673	21,877	385
.....	.....	.....	.....	.....	11,395	.....	.....	.....	11,395	386
.....	200	.....	.....	.....	600	.....	.....	19	819	387
.....	373	.....	.....	.....	.....	.....	.....	8	381	388
.....	.....	.....	783	.....	.....	.....	.....	5	788	389
654	2,557	.....	.....	12,001	1,153	4,321	.....	1,333	22,019	390
.....	389	.....	.....	.....	.....	1,050	.....	.....	1,439	391
527	54	.....	.....	.....	.....	.....	.....	.....	581	392
.....	.....	.....	5,500	.....	.....	.....	.....	83	5,583	393
.....	2,350	.....	735	.....	.....	311	.....	53	3,449	394
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	395
.....	.....	.....	.....	.....	.....	.....	.....	310	310	396
.....	1,714	.....	764	.....	.....	.....	.....	331	2,809	397
7,379	61	.....	.....	.....	.....	2,053	.....	110	9,603	398
2,228	6,190	.....	2,046	.....	.....	.....	.....	553	11,017	399
2,128	3,935	.....	650	.....	.....	.....	.....	318	7,031	400
.....	643	.....	3,536	.....	823	.....	.....	.....	5,002	401
.....	.....	.....	1,331	12,014	.....	.....	.....	175	13,520	402
6,003	.....	.....	.....	.....	.....	400	.....	.....	6,403	403
.....	.....	.....	.....	.....	.....	175	.....	.....	175	404
.....	.....	.....	4,867	6,693	.....	.....	.....	100	11,660	405
.....	757	.....	2,632	.....	600	8	.....	115	4,112	406
159	994	.....	.....	.....	.....	.....	.....	.....	1,153	407
.....	1,729	.....	.....	.....	.....	.....	.....	113	1,842	408
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	409
4,399	.....	5,402	7,926	55,438	890	2	.....	12,442	86,499	410
286	.....	.....	591	.....	.....	1,647	.....	.....	2,524	411
.....	325	.....	.....	.....	.....	.....	.....	.....	325	412
.....	1,918	.....	1,820	.....	.....	.....	.....	.....	3,738	413
7,504	419	.....	2,012	.....	1,400	.....	.....	54	11,389	414
.....	1,610	.....	218	.....	.....	900	.....	57	2,785	415
.....	.....	.....	.....	.....	.....	322	.....	190	512	416
1,637	.....	.....	.....	.....	.....	4,150	.....	.....	5,787	417
.....	2,535	.....	459	10,866	11,759	.....	.....	326	25,945	418
.....	733	.....	1,400	.....	.....	.....	.....	231	2,364	419
1,355	602	6,440	4,222	32,073	3,965	5,248	.....	10,129	64,034	420
2,305	.....	.....	4,467	.....	1,303	900	.....	.....	8,975	421
2,534	.....	.....	.....	70,061	.....	22,547	.....	7,018	102,160	422
2,585	147	10,000	7,662	33,178	.....	.....	.....	7,311	60,883	423
.....	600	.....	345	.....	.....	.....	.....	160	1,105	424
.....	1,496	.....	99	.....	.....	307	.....	50	1,952	425
.....	755	.....	.....	.....	.....	.....	.....	112	867	426
.....	1,225	.....	1,620	.....	1,854	.....	.....	74	4,773	427
.....	443	.....	5,063	.....	.....	.....	.....	5	5,511	428
.....	1,569	.....	1,500	.....	.....	.....	.....	.....	3,069	429
.....	.....	.....	15,500	.....	.....	.....	.....	.....	15,500	430
.....	50	.....	.....	.....	.....	.....	.....	.....	50	431
2,220	4,711	.....	.....	23,249	13,779	.....	.....	604	44,563	432
1,480	2,845	.....	.....	20,627	.....	6,854	.....	1,774	33,580	433
2,239	6,351	.....	.....	21,235	6,084	1,313	.....	1,187	38,409	434
.....	.....	7,500	777	.....	3,300	350	.....	.....	11,927	435

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities and Counties in which located.	Receipts, 1909.						
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$
436 Sarnia, Lambton	2,287	21,076	.....	1	20	.....	2,523
437 Saugeen, Bruce	1,667	9,674	.....	.....	41	.....	900
438 Scarborough, York	193	24,677	228	.....	641	.....	2,101
439 Schreiber, Thunder Bay	679	4,712	106	198	.....	.....	850
440 Scott, Ontario	1,222	13,396	.....	.....	259	.....	2,700
441 Scugog, Ontario	208	2,848	.....	21	1	.....	100
442 Sebastopol, Renfrew	142	1,480	20	.....	.....	.....	.....
443 Seneca, Haldimand	1,008	12,845	.....	19	19	.....	1,070
444 Seymour, Northumberland	3,628	19,875	.....	11	12	.....	6,200
445 Sheffield, Lennox and Addington	719	8,875	202	22	9	.....	.....
446 Sherborne, McClintock, &c., Halbn.	137	2,016	90	64	.....	.....	500
447 Sherbrooke, Haldimand	52	2,340	71	.....	53	1,358	600
448 Sherbrooke S., Lanark	156	2,358	.....	35	.....	.....	.....
449 Shuniah, Thunder Bay	206	6,334	.....	.....	259	10,000	4,411
450 Sidney, Hastings	2,917	26,629	.....	12	195	.....	2,000
451 Smith, Peterborough	2,615	15,823	.....	.....	42	.....	.....
452 Snowdon, Haliburton	220	1,799	.....	.....	.....	.....	.....
453 Sombra, Lambton	2,732	32,239	282	17	.....	.....	.....
454 Somerville, Victoria	82	8,697	.....	15	301	10,366	.....
455 Sophiasburg, Prince Edward	240	10,976	.....	53	21	.....	208
456 Southwold, Elgin	.....	34,344	.....	17	37	.....	9,000
457 Springer, Nipissing	77	4,595	36	15	.....	.....	7,500
458 Stafford, Renfrew	302	3,423	.....	.....	.....	.....	.....
459 Stamford, Welland	2,063	19,872	171	146	112	.....	15,824
460 Stanhope, Haliburton	191	1,764	.....	.....	.....	.....	.....
461 Stanley, Huron	.....	15,007	.....	22	.....	.....	3,900
462 Stephen, Huron	2,354	24,742	360	21	21	478	8,035
463 Stephenson, Muskoka	244	4,255	59	32	.....	.....	400
464 Stisted, Muskoka	86	2,848	.....	2	4	41	500
465 Storrington, Frontenac	155	12,501	.....	7	.....	.....	400
466 Strong, Parry Sound	554	2,614	.....	.....	.....	.....	293
467 Sullivan, Grey	5,083	14,301	25	18	100	.....	.....
468 Sunnidale, Simcoe	3,967	12,967	101	62	51	.....	4,860
469 Sydenham, Grey	1,417	18,469	.....	.....	.....	.....	3,451
470 Tarentorus & Rankin, Algoma	867	8,339	.....	.....	3	.....	1,000
471 Tay, Simcoe	389	21,068	63	24	.....	.....	3,000
472 Tecumseth, Simcoe	862	23,873	.....	.....	31	.....	4,500
473 Tehkummah, Manitoulin	592	1,741	.....	12	.....	.....	.....
474 Thessalon, Algoma	640	2,887	.....	9	.....	.....	.....
475 Thompson, Algoma	489	547	.....	.....	.....	.....	.....
476 Thorah, Ontario	140	8,059	.....	17	1,499	.....	1,500
477 Thorold, Welland	1,403	9,685	228	45	29	.....	5,144
478 Thurlow, Hastings	72	26,188	.....	3	17	.....	4,500
479 Tilbury E., Kent	1,092	32,373	.....	196	21	.....	16,742
480 Tilbury N., Essex	462	17,096	198	.....	5	.....	1,496
481 Tilbury W., Essex	4,621	13,312	207	23	123	.....	500
482 Tiny, Simcoe	1,499	18,748	51	.....	.....	.....	5,200
483 Torbolton, Carleton	383	3,602	.....	.....	.....	.....	.....
484 Toronto, Peel	4,706	34,065	271	27	1,301	5,710	6,400
485 Toronto Gore, Peel	310	7,888	50	.....	160	11	1,053
486 Tossorontio, Simcoe	1,042	7,783	118	.....	.....	.....	500

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
.....	4,618	.....	134	.....	250	30,909	912	125	149	4,718	.....	436
.....	.....	.....	.....	398	295	12,975	558	7	116	3,239	.....	437
.....	.....	.....	.....	.....	461	28,301	1,603	.....	457	7,893	170	438
.....	.....	.....	.....	.....	484	7,029	330	.....	216	435	.....	439
.....	.....	.....	.....	.....	329	17,906	868	8	232	2,839	.....	440
.....	.....	.....	.....	.....	25	3,203	204	.....	67	267	.....	441
.....	.....	.....	.....	.....	22	1,664	165	3	69	65	.....	442
.....	.....	.....	.....	.....	141	15,102	576	.....	252	1,372	1,499	443
.....	.....	.....	.....	123	102	29,951	1,008	340	312	3,951	.....	444
.....	.....	.....	.....	55	98	9,980	651	.....	285	603	33	445
.....	.....	.....	.....	.....	226	3,033	244	3	132	616	.....	446
.....	.....	.....	.....	.....	17	4,491	106	180	37	55	.....	447
.....	.....	.....	.....	.....	49	2,598	252	.....	91	171	.....	448
.....	.....	.....	.....	.....	*2,757	23,967	959	.....	500	9,267	.....	449
.....	.....	.....	.....	.....	566	32,319	794	25	478	4,551	.....	450
1,000	.....	.....	.....	.....	899	20,379	803	.....	82	3,682	.....	451
.....	.....	.....	.....	.....	1,123	3,142	270	.....	68	246	.....	452
.....	7,007	.....	.....	425	322	43,024	1,192	118	327	4,686	.....	453
.....	.....	.....	.....	.....	183	19,644	598	96	130	916	.....	454
.....	.....	.....	.....	.....	58	11,556	478	.....	254	775	.....	455
.....	1,588	.....	.....	536	241	45,763	1,352	332	501	8,227	.....	456
.....	.....	3,500	.....	.....	1,823	17,546	759	134	136	1,524	.....	457
.....	.....	.....	.....	.....	57	3,782	245	2	63	833	.....	458
10,000	.....	.....	.....	.....	204	48,392	800	89	654	16,169	.....	459
.....	.....	.....	.....	.....	94	2,049	238	.....	79	116	.....	460
.....	.....	.....	.....	.....	306	19,235	667	.....	194	5,012	.....	461
.....	.....	900	.....	.....	657	37,568	762	41	607	8,193	.....	462
.....	.....	.....	.....	.....	120	5,110	403	86	232	716	.....	463
.....	.....	.....	.....	.....	364	3,845	338	.....	102	819	.....	464
.....	.....	.....	.....	.....	124	13,187	534	.....	165	1,517	.....	465
.....	.....	.....	.....	.....	116	3,577	287	.....	81	522	.....	466
.....	.....	.....	.....	.....	213	19,740	742	114	221	2,556	65	467
.....	2,546	.....	.....	.....	509	25,063	849	75	459	2,605	.....	468
.....	.....	.....	.....	.....	143	23,480	1,264	513	377	3,262	.....	469
.....	.....	.....	.....	.....	†2,747	12,956	1,337	47	253	2,766	481	470
.....	.....	.....	.....	.....	93	24,637	1,032	45	219	2,550	.....	471
.....	.....	.....	.....	.....	109	29,375	779	25	291	5,215	215	472
.....	.....	.....	.....	.....	542	2,887	194	.....	51	461	.....	473
.....	.....	.....	.....	.....	448	3,984	302	1	112	1,013	.....	474
.....	.....	.....	.....	.....	.....	1,036	117	3	34	112	.....	475
.....	.....	.....	.....	10	215	11,440	753	193	193	1,605	800	476
.....	.....	.....	.....	.....	322	16,856	862	54	355	5,856	.....	477
6,500	.....	.....	.....	.....	241	37,521	929	3	462	1,893	.....	478
.....	.....	.....	.....	25	1,037	51,486	1,729	397	496	4,259	350	479
.....	.....	.....	.....	.....	411	19,668	894	1,979	371	1,578	.....	480
.....	.....	2,011	.....	.....	253	21,050	971	92	599	4,322	969	481
.....	.....	.....	.....	.....	389	25,887	1,045	.....	195	3,106	75	482
.....	.....	.....	.....	.....	30	4,015	187	.....	74	421	.....	483
.....	.....	.....	.....	.....	632	53,112	1,609	16	607	13,705	.....	484
.....	.....	.....	.....	.....	155	9,627	512	.....	120	1,425	.....	485
.....	.....	.....	.....	.....	73	9,516	545	.....	228	700	.....	486

* Including $2,752 Government Grant for roads.
† Including $1,352 Government Grant for roads, and $1,324 on account of shortage of late Treasurer.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

	Township Municipalities.	Disbursements, 1909.—*Continued.*						
		Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
		$	$	$	$	$	$	$
436	Sarnia	435	374	2,314	5,009	4,906	.....	.....
437	Saugeen	21	10	2,735	3,607	.....	.....	.....
438	Scarborough	1,114	30	6,196	8,841	.....	.....	.....
439	Schreiber	.....	.....	.....	2,846	.....	.....	.....
440	Scott	119	193	3,060	6,289	.....	.....	.....
441	Scugog	.....	5	760	1,535	.....	.....	.....
442	Sebastopol	.....	11	244	907	.....	.....	.....
443	Seneca	66	28	3,568	5,292	.....	.....	.....
444	Seymour	640	26	3,607	6,812	.....	.....	.....
445	Sheffield	6	183	2,286	3,871	.....	.....	.....
446	Sherborne, McClintock, &c.	628	10	64	275	.....	.....	.....
447	Sherbrooke	3	5	530	2,801	230	.....	373
448	Sherbrooke S.	3	11	430	1,498	.....	.....	.....
449	Shuniah	.....	20	.....	1,050	.....	642	.....
450	Sidney	459	16	12,547	9,814	.....	.....	.....
451	Smith	127	84	5,567	7,755	.....	.....	.....
452	Snowdon	.....	5	200	1,479	.....	.....	.....
453	Sombra	115	614	3,256	9,147	11,130	.....	.....
454	Somerville	227	20	668	4,107	.....	.....	.....
455	Sophiasburg	16	21	3,841	5,918	.....	.....	.....
456	Southwold	84	13	8,618	9,530	2,222	.....	.....
457	Springer	2	20	.....	3,051	87	.....	.....
458	Stafford	9	.....	.....	1,991	.....	.....	.....
459	Stamford	59	613	2,784	17,764	.....	.....	.....
460	Stanhope	.....	12	83	955	.....	.....	.....
461	Stanley	40	104	3,087	5,092	242	.....	.....
462	Stephen	194	99	4,559	8,825	101	.....	632
463	Stephenson	10	.....	.....	2,948	.....	90	.....
464	Stisted	.....	.....	.....	1,715	.....	.....	.....
465	Storrington	.....	.....	5,442	4,881	.....	.....	.....
466	Strong	5	5	.....	1,859	.....	.....	.....
467	Sullivan	60	65	3,123	7,684	8	.....	.....
468	Sunnidale	40	33	7,545	5,987	970	.....	.....
469	Sydenham	185	85	3,170	8,468	.....	.....	.....
470	Tarentorus and Rankin	14	68	.....	1,626	.....	.....	.....
471	Tay	805	235	4,049	14,191	.....	.....	.....
472	Tecumseth	1	31	6,049	8,076	.....	.....	.....
473	Tehkummah	.....	5	.....	1,438	.....	.....	.....
474	Thessalon	6	15	.....	1,947	.....	.....	.....
475	Thompson	5	.....	.....	350	.....	.....	.....
476	Thorah	66	134	1,908	2,552	20	.....	.....
477	Thorold	154	73	2,263	4,544	.....	.....	.....
478	Thurlow	1,104	334	8,999	17,884	.....	.....	.....
479	Tilbury E.	114	304	2,418	9,686	10,456	.....	.....
480	Tilbury N.	27	88	3,682	4,616	1,132	.....	.....
481	Tilbury W.	27	112	1,923	5,106	331	.....	.....
482	Tiny	103	178	.....	4,438	7,196	.....	.....
483	Torbolton	7	15	752	2,355	.....	.....	.....
484	Toronto	282	38	7,563	11,986	.....	.....	5,625
485	Toronto Gore	163	50	2,199	2,517	.....	.....	18
486	Tossorontio	94	128	2,311	3,801	.....	.....	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
764	4,477	.....	5,000	1,522	.....	204	30,909	.....	3,071	.....	436
.....	62	.....	900	50	.....	103	11,408	1,567	15	.....	437
585	.....	.....	719	464	.....	87	28,159	142	1,332	.....	438
147	.....	.....	.....	322	.....	.....	4,296	2,733	1,106	.....	439
.....	.....	.....	2,700	70	.....	104	16,482	1,424	.....	.....	440
.....	.....	.....	200	6	.....	4	3,048	155	.....	.....	441
.....	.....	.....	.....	1	.....	2	1,467	197	167	.....	442
.....	.....	.....	1,070	14	.....	128	13,865	1,237	150	.....	443
.....	.....	.....	12,500	150	.....	182	29,528	423	799	.....	444
.....	.....	406	.....	228	.....	41	8,593	1,387	1,305	.....	445
69	.....	.....	500	52	.....	.....	2,593	440	260	.....	446
.....	.....	.....	.....	.....	.....	.....	4,320	171	287	.....	447
.....	.....	.....	.....	.....	.....	26	2,482	116	617	.....	448
.....	.....	.....	10,517	968	.....	44	23,967	.....	4,579	6,562	449
.....	.....	.....	2,000	43	.....	590	31,317	1,002	13,294	.....	450
133	.....	.....	.....	64	.....	76	18,373	2,006	1,887	.....	451
.....	.....	.....	300	20	.....	35	2,623	519	1,783	.....	452
194	5,887	.....	2,500	2,655	.....	326	42,147	877	27,099	.....	453
479	.....	10,000	1,023	600	.....	115	18,979	665	5,864	.....	454
.....	.....	.....	208	1	.....	16	11,528	28	543	.....	455
280	1,605	.....	9,868	531	.....	1,888	45,051	712	1,947	.....	456
.....	.....	155	10,500	282	.....	134	16,784	762	4,279	.....	457
.....	.....	.....	.....	.....	.....	6	3,149	633	1,340	.....	458
528	.....	719	7,000	761	222	230	48,392	.....	2,134	.....	459
214	.....	.....	.....	74	.....	.....	1,771	278	1,020	.....	460
.....	550	.....	3,905	162	.....	123	19,178	57	8	.....	461
630	1,187	.....	7,800	753	.....	763	35,146	2,422	1,278	.....	462
80	.....	.....	308	90	.....	36	4,999	111	1,955	384	463
41	.....	.....	200	8	.....	436	3,659	186	645	.....	464
.....	.....	.....	.....	6	.....	89	12,634	553	2,263	.....	465
.....	.....	.....	293	7	.....	22	3,081	496	1,685	.....	466
50	.....	.....	.....	5	.....	52	14,745	4,995	57	.....	467
96	407	.....	4,860	450	.....	131	24,507	556	64	.....	468
70	.....	.....	3,451	148	.....	946	21,939	1,541	115	.....	469
.....	.....	.....	3,700	87	.....	104	10,483	2,473	5,674	.....	470
515	.....	.....	.....	204	.....	119	23,964	673	13,619	.....	471
.....	447	.....	4,500	370	.....	115	26,114	3,261	453	.....	472
.....	.....	.....	.....	.....	.....	28	2,177	710	1,027	.....	473
122	.....	110	.....	133	.....	31	3,792	192	2,018	.....	474
.....	.....	.....	50	14	.....	41	726	310	951	.....	475
.....	.....	.....	1,500	58	.....	303	10,085	1,355	789	.....	476
.....	.....	.....	1,500	38	.....	250	15,949	907	3,466	.....	477
633	.....	.....	2,500	489	.....	146	35,376	2,145	9,528	.....	478
181	13,305	966	.....	6,379	.....	349	51,389	97	41,254	.....	479
.....	3,004	.....	732	1,190	.....	188	19,481	187	10,317	.....	480
.....	2,513	637	500	426	.....	985	19,513	1,537	12,738	.....	481
337	215	863	5,419	1,808	.....	45	25,023	864	11,575	.....	482
.....	.....	.....	.....	.....	.....	22	3,833	182	3,323	.....	483
192	.....	.....	6,400	284	.....	1,533	49,840	3,272	1,705	.....	484
.....	.....	274	1,053	57	.....	55	8,443	1,184	.....	.....	485
.....	.....	.....	500	9	.....	1	8,317	1,199	104	.....	486

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

	Township Municipalities.	Assets on Dec. 31, 1909.—*Continued.*			
		All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
		$	$	$	$
436	Sarnia	.....	1,000	653	4,724
437	Saugeen	.....	.....	81	1,663
438	Scarborough	13,129	1,060	4,216	19,879
439	Schreiber	.....	1,650	5,237	10,726
440	Scott	4,761	930	.....	7,115
441	Scugog	.....	1,470	.....	1,625
442	Sebastopol	.....	.....	.....	364
443	Seneca	.....	2,500	.....	3,887
444	Seymour	.....	.....	.....	1,222
445	Sheffield	.....	2,000	1	4,693
446	Sherborne, McClintock, &c.	.....	1,009	1,066	2,775
447	Sherbrooke	900	.....	820	2,178
448	Sherbrooke S.	.....	.....	.....	733
449	Shuniah	.....	.....	.....	11,141
450	Sidney	.....	1,000	46	15,342
451	Smith	.....	.....	1,067	4,960
452	Snowdon	.....	.....	90	2,392
453	Sombra	.....	1,875	68,633	98,484
454	Somerville	.....	.....	1,035	7,564
455	Sophiasburg	3,418	3,500	.....	7,489
456	Southwold	.....	1,440	1,439	5,538
457	Springer	.....	.....	915	5,956
458	Stafford	.....	500	3	2,476
459	Stamford	.....	8,300	11,748	22,182
460	Stanhope	.....	.....	1,107	2,405
461	Stanley	.....	1,240	436	1,741
462	Stephen	632	1,500	8,251	14,083
463	Stephenson	.....	1,250	1,552	5,252
464	Stisted	32	1,328	.....	2,191
465	Storrington	.....	1,000	.....	3,816
466	Strong	.....	590	.....	2,771
467	Sullivan	.....	1,890	50	6,992
468	Sunnidale	.....	600	943	2,163
469	Sydenham	.....	500	1,739	3,895
470	Tarentorus and Rankin	.....	775	.....	8,922
471	Tay	.....	410	1,260	15,962
472	Tecumseth	.....	.....	5,577	9,291
473	Tehkummah	.....	.....	.....	1,737
474	Thessalon	.....	565	.....	2,775
475	Thompson	.....	267	.....	1,528
476	Thorah	50,000	1,275	.....	53,419
477	Thorold	.....	2,300	3,817	10,490
478	Thurlow	.....	2,000	9,367	23,040
479	Tilbury E.	.....	1,500	19,325	62,176
480	Tilbury N.	.....	.....	1,135	11,639
481	Tilbury W.	.....	2,000	1,577	17,852
482	Tiny	.....	.....	8,368	20,807
483	Torbolton	.....	.....	.....	3,505
484	Toronto	28,830	2,650	346	36,803
485	Toronto Gore	3,518	1,018	39	5,759
486	Tossorontio	.....	350	.....	1,653

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on Dec. 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	2,153	22,240	.....	523	.....	523	25,439	436
.....	.....	.....	.....	694	.....	.....	.....	10	704	437
.....	.....	.....	4,216	.....	.....	2,101	.....	.....	6,317	438
.....	.....	.....	5,237	.....	.....	850	.....	.....	6,087	439
.....	.....	.....	.....	185	.....	.....	.....	.....	185	440
.....	.....	.....	.....	.....	.....	.....	.....	25	25	441
.....	.....	.....	.....	.....	.....	.....	.....	70	70	442
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	443
.....	.....	.....	.....	.....	.....	.....	.....	149	149	444
.....	945	.....	.....	.....	5,073	.....	.....	543	6,561	445
.....	130	.....	702	.....	.....	.....	.....	55	887	446
.....	.....	.....	.....	.....	.....	600	.....	.....	600	447
.....	.....	.....	.....	.....	.....	.....	.....	123	123	448
.....	.....	.....	.....	.....	17,500	710	1,586	.....	19,796	449
10,974	.....	.....	.....	.....	.....	.....	.....	.....	10,974	450
.....	.....	.....	1,067	.....	.....	.....	.....	.....	1,067	451
269	1,019	.....	.....	.....	.....	.....	.....	.....	1,288	452
3,917	11,203	.....	3,315	61,529	.....	.....	.....	4,192	84,156	453
.....	3,337	.....	998	.....	.....	.....	.....	152	4,487	454
.....	.....	.....	.....	.....	.....	.....	.....	133	133	455
52	.....	.....	599	6,497	.....	.....	.....	1,929	9,077	456
.....	.....	.....	.....	.....	5,055	.....	.....	1,836	6,891	457
950	132	.....	.....	.....	.....	.....	.....	75	1,157	458
.....	242	.....	11,748	.....	7,282	8,824	.....	825	28,921	459
108	413	.....	1,055	.....	.....	.....	.....	45	1,621	460
955	.....	.....	.....	550	.....	.....	.....	12	1,517	461
.....	.....	.....	7,740	2,556	3,900	235	.....	.....	14,431	462
.....	838	.....	1,720	.....	.....	411	90	293	3,352	463
.....	.....	.....	32	.....	.....	300	.....	.....	332	464
1,395	166	.....	.....	.....	.....	400	.....	.....	1,961	465
.....	755	.....	.....	.....	.....	.....	.....	.....	755	466
.....	387	.....	50	.....	.....	.....	.....	.....	437	467
.....	760	.....	676	5,013	.....	.....	.....	220	6,669	468
.....	.....	.....	1,739	.....	.....	.....	.....	.....	1,739	469
.....	772	.....	.....	.....	.....	.....	.....	530	1,302	470
4,074	6,590	.....	1,260	.....	.....	3,000	.....	300	15,224	471
2,132	.....	.....	.....	5,577	.....	.....	.....	.....	7,709	472
.....	634	.....	.....	.....	.....	.....	.....	6	640	473
.....	.....	.....	.....	.....	2,499	.....	.....	30	2,529	474
.....	.....	.....	.....	.....	.....	.....	.....	60	60	475
.....	818	.....	.....	.....	.....	.....	.....	.....	818	476
.....	3,116	.....	.....	.....	.....	3,666	.....	553	7,335	477
9,652	.....	.....	9,367	.....	.....	2,000	.....	100	21,119	478
2,570	5,119	2,702	.....	113,098	2,840	16,742	.....	9,552	152,623	479
.....	2,019	.....	.....	19,924	.....	1,496	.....	542	23,981	480
1,971	5,609	.....	.....	12,859	3,096	.....	.....	833	24,368	481
.....	.....	38,088	1,069	1,206	.....	5,342	.....	.....	45,705	482
780	1,625	.....	.....	.....	.....	.....	.....	483	2,888	483
.....	.....	.....	346	.....	.....	6,000	.....	.....	6,346	484
.....	.....	.....	.....	.....	581	.....	.....	31	612	485
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	486

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities and Counties in which located.	Receipts, 1909.						
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$
487 Townsend, Norfolk	3,197	20,045	.....	20	78	.....	1,900
488 Trafalgar, Halton	.....	29,546	.....	12	1,670	.....	14,527
489 Tuckersmith, Huron	2,631	17,783	96	20	1,416	.....	18,747
490 Tudor and Cashel, Hastings	510	3,294	.....	1	.....	.....	1,241
491 Turnberry, Huron	1,145	10,600	45	.....	30	.....	.....
492 Tyendinaga, Hastings	1,375	20,679	180	14	23	.....	.....
493 Usborne, Huron	6,687	16,774	.....	.....	193	.....	.....
494 Uxbridge, Ontario	282	12,037	155	48	.....	.....	1,600
495 Van Horne, Kenora	357	4,640	302	162	.....	.....	.....
496 Vaughan, York	6,215	31,134	.....	.....	1,330	15,526	.....
497 Verulam, Victoria	3,4[illegible]5	1[illegible],274	.....	10	46	497	.....
498 Vespra, Simcoe	563	14,859	.....	.....	144	.....	.....
499 Wainfleet, Welland	188	14,933	48	506	845	.....	.....
500 Wallace, Perth	443	16,17[illegible]	55	58	603	754	400
501 Walpole, Haldimand	1,391	34,29[illegible]	150	1[illegible]	4[illegible]	.....	9,000
502 Walsingham N., Norfolk	3,436	10,76[illegible]	.....	[illegible]	.....	.....	2,000
503 Walsingham S., Norfolk	.....	10,869	42	.....	.....	.....	3,129
504 Warwick, Lambton	3,225	22,501	.....	1	23	.....	7,000
505 Waterloo, Waterloo	3,898	37,241	466	4	1,855	2,141	1,200
506 Waters, Sudbury	317	1,237	.....	1	.....	.....	483
507 Watt, Muskoka	843	3,14[illegible]	5	21	.....	.....	150
508 Wawanosh, E. Huron	1,155	12,626	.....	.....	24	.....	1,800
509 Wawanosh, W. Huron	963	10,86[illegible]	.....	.....	13	.....	1,300
510 Wellesley, Waterloo	1,656	3[illegible],43[illegible]	818	5	396	748	.....
511 Westmeath, Renfrew	.....	13,877	153	69	5	.....	3,501
512 Westminster, Middlesex	5,870	37,487	13[illegible]	6	41	.....	8,[illegible]00
513 Whitby, Ontario	10	15,437	111	.....	.....	.....	9,700
514 Whitby, E. Ontario	967	14,518	151	12	144	.....	5,168
515 Whitchurch, York	271	17,578	.....	.....	438	517	2,750
516 Widdifield, Nipissing	184	9,095	88	40	.....	.....	4,209
517 Wilberforce & Algona, N. Renfrew	939	7,15[illegible]	51	[illegible]0	.....	.....	.....
518 Williams, E. Middlesex	1,807	15,22[illegible]	.....	11	.....	.....	3,747
519 Williams, W. Middlesex	971	11,017	.....	.....	.....	.....	7,[illegible]00
520 Williamsburg, Dundas	.....	26,909	.....	.....	.....	.....	3,6[illegible]3
521 Willoughby, Welland	956	6,156	143	25	12	.....	.....
522 Wilmot, Waterloo	.....	32,755	576	5	53	.....	4,000
523 Winchester, Dundas	.....	37,919	.....	.....	139	29	22,237
524 Windham, Norfolk	2,922	18,933	.....	14	15	.....	.....
525 Wolfe Island, Frontenac	1,968	11,249	60	.....	65	.....	.....
526 Wolford, Grenville	234	10,502	53	3	7	.....	900
527 Wollaston, Hastings	507	2,480	.....	15	.....	.....	.....
528 Woodhouse, Norfolk	10	11,765	.....	6	5	.....	.....
529 Woolwich, Waterloo	583	16,751	372	23	348	2,131	1,000
530 Worthington & Blue, Rainy River	338	1,[illegible]40	.....	10	.....	.....	1,968
531 Yarmouth, Elgin	751	48,960	.....	40	7	.....	20,934
532 Yonge Front, Leeds	.....	9,026	5	33	56	.....	1,200
533 Yonge & Escott, Rear, Leeds	.....	10,183	.....	15	.....	.....	.....
534 York, York	45,363	144,098	482	97	3,778	5,620	.....
535 Zone, Kent	2,637	9,268	.....	4	41	.....	5,400
536 Zorra E., Oxford	1,937	34,064	53	288	74	.....	7,000
537 Zorra W., Oxford	18,071	25,204	.....	.....	442	.....	2,657

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*							Disbursements, 1909.						
Borrowed on debentures for schools.	Borrowed on debentures for drainage.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Law costs.	Other expenses of municipal government.	Roads and bridges.	Buildings and other works.	No.
$	$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	.....	287	25,527	998	.....	304	5,450	.....	487
.....	.....	.....	.....	.....	410	46,165	1,286	104	412	7,227	.....	488
1,300	.....	17,427	298	.....	713	60,431	834	15	290	5,718	16,205	489
.....	.....	.....	.....	263	1,051	6,360	474	.....	62	2,287	.....	490
.....	.....	.....	.....	.....	113	11,933	739	.....	126	1,135	.....	491
.....	.....	.....	.....	.....	170	22,441	1,517	1	356	1,891	.....	492
.....	.....	.....	.....	.....	182	23,836	608	20	279	3,755	.....	493
.....	.....	.....	.....	.....	272	14,394	927	35	225	1,589	.....	494
.....	.....	.....	.....	.....	532	5,993	1,113	100	661	1,517	.....	495
.....	.....	.....	.....	.....	1,253	55,458	1,637	801	673	11,579	444	496
.....	.....	.....	.....	18	147	16,487	508	11	231	3,286	.....	497
900	.....	.....	.....	.....	159	16,625	891	555	177	1,305	.....	498
2,350	2,608	.....	.....	.....	72	21,550	787	60	498	1,550	.....	499
.....	.....	.....	.....	.....	950	19,434	811	49	234	1,904	14	500
2,500	.....	.....	50	.....	357	47,799	1,103	198	369	10,448	244	501
.....	.....	.....	.....	.....	197	16,404	549	12	176	4,297	.....	502
.....	.....	.....	.....	.....	130	14,170	589	38	275	2,140	.....	503
.....	1,322	.....	.....	.....	685	35,785	744	36	204	5,540	.....	504
.....	.....	.....	.....	226	617	47,648	1,625	35	373	8,775	.....	505
.....	.....	.....	.....	.....	999	3,037	232	5	60	1,492	.....	506
.....	.....	.....	.....	.....	90	4,258	265	32	97	829	.....	507
.....	.....	.....	.....	.....	487	16,092	659	60	183	2,503	 9	508
.....	.....	.....	.....	.....	202	13,344	659	18	330	2,020	43	509
.....	8,867	.....	312	78	858	46,163	1,382	100	510	5,047	.....	510
.....	.....	.....	.....	.....	251	17,856	869	.....	83	2,477	.....	511
5,000	.....	.....	320	.....	269	57,131	1,545	140	428	11,007	.....	512
.....	.....	.....	.....	.....	201	25,459	912	5	272	4,057	.....	513
.....	.....	.....	.....	.....	194	21,454	869	6	187	5,594	.....	514
.....	.....	.....	.....	.....	180	21,734	805	.....	275	2,293	.....	515
500	.....	.....	.....	.....	230	14,347	2,038	50	435	2,871	.....	516
.....	.....	.....	.....	.....	300	8,475	556	.....	153	819	.....	517
.....	.....	.....	.....	.....	273	21,064	563	110	170	2,537	.....	518
.....	.....	.....	.....	89	196	19,473	371	.....	99	3,283	.....	519
.....	7,313	.....	544	.....	398	38,787	725	.....	418	9,119	.....	520
.....	585	.....	.....	.....	61	7,939	168	1	230	594	.....	521
.....	.....	.....	.....	564	178	38,131	1,494	79	561	4,387	.....	522
.....	3,828	.....	31	.....	1,014	65,197	1,269	103	497	5,671	.....	523
.....	.....	.....	.....	.....	543	22,427	890	70	283	4,982	.....	524
.....	.....	.....	.....	.....	134	13,476	459	89	187	1,317	.....	525
.....	.....	.....	.....	.....	112	11,811	445	.....	161	1,763	.....	526
.....	.....	.....	.....	263	1,078	4,343	326	.....	281	1,306	.....	527
.....	.....	.....	.....	.....	119	11,405	597	96	214	2,222	.....	528
.....	.....	.....	.....	.....	365	31,376	1,059	15	384	2,801	.....	529
500	.....	.....	.....	.....	21	4,827	381	.....	69	176	.....	530
4,600	.....	.....	.....	.....	*2,090	77,362	1,698	98	609	22,398	.....	531
.....	.....	.....	.....	.....	192	10,512	494	.....	145	2,496	.....	532
.....	.....	.....	.....	.....	32	10,230	406	10	100	910	.....	533
2,000	.....	2,370	188	.....	1,491	205,487	8,568	786	2,380	43,000	514	534
.....	2,040	.....	.....	.....	682	20,072	891	44	234	3,254	.....	535
.....	2,302	.....	.....	783	1,107	47,608	1,043	.....	331	8,172	.....	536
.....	3,452	.....	.....	13	905	50,744	772	274	418	5,626	.....	537

* Including $971 from other municipalities.

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Disbursements, 1909.—*Continued.*						
	Board of Health.	Support of the poor and other charities.	County Treasurer for levies.	Payment on account of schools and education.	Drainage works.	Sinking Fund investments and deposits.	Other investments and deposits.
	$	$	$	$	$	$	$
487 Townsend	223	25	6,298	8,983	.....	.....	.....
488 Trafalgar	69	325	9,936	9,660	.....	.....	.....
489 Tuckersmith	26	18	4,017	6,200	637	.....	.....
490 Tudor and Cashel	387	19	335	1,749	.....	.....	.....
491 Turnberry	33	10	2,711	4,970	135	.....	.....
492 Tyendinaga	20	5	7,656	9,179	.....	.....	.....
493 Usborne	30	26	4,024	4,044	2,489	.....	.....
494 Uxbridge	352	18	2,459	6,223	.....	.....	.....
495 Van Horne	143	.....	.....	1,800	.....	.....	.....
496 Vaughan	136	115	7,175	11,322	.....	.....	15,476
497 Verulam	39	.....	2,577	5,096	.....	.....	.....
498 Vespra	17	64	4,017	7,617	78	.....	.....
499 Wainfleet	11	.....	3,697	8,591	2,600	.....	.....
500 Wallace	96	6	5,240	6,502	380	1,939	.....
501 Walpole	179	534	7,698	14,032	.....	.....	.....
502 Walsingham N.	24	101	1,989	6,670	44	.....	.....
503 Walsingham S.	258	48	1,923	4,784	438	.....	.....
504 Warwick	27	201	5,635	8,034	1,296	.....	.....
505 Waterloo	596	476	8,276	19,916	46	.....	2,095
506 Waters	.....	.....	.....	550	.....	.....	.....
507 Watt	14	47	.....	1,959	.....	.....	.....
508 Wawanosh, E.	2	5	2,671	5,063	674	.....	.....
509 Wawanosh, W.	43	172	2,690	5,291	.....	.....	.....
510 Wellesley	91	13	6,873	15,145	3,075	.....	748
511 Westmeath	5	37	3,040	7,257	.....	.....	.....
512 Westminster	365	56	10,072	16,753	320	.....	.....
513 Whitby	24	301	3,640	5,313	.....	.....	.....
514 Whitby, E.	.....	228	3,726	5,846	.....	.....	.....
515 Whitchurch	287	183	5,070	8,184	.....	.....	502
516 Widdifield	29	287	.....	3,742	.....	.....	.....
517 Wilberforce and Algona N.	.....	171	1,274	5,040	.....	.....	.....
518 Williams, E.	561	5	5,135	3,313	2,118	.....	.....
519 Williams, W.	.....	.....	3,819	3,445	19	.....	.....
520 Williamsburg	12	535	3,601	8,515	3,891	.....	.....
521 Willoughby	.....	5	1,559	3,127	736	.....	.....
522 Wilmot	266	18	9,365	14,305	.....	.....	.....
523 Winchester	.....	174	6,916	12,658	17,950	.....	.....
524 Windham	151	71	4,309	9,565	1,022	.....	.....
525 Wolfe Island	43	233	3,914	4,903	.....	.....	.....
526 Wolford	.....	35	1,867	5,468	570	.....	.....
527 Wollaston	14	42	317	1,260	.....	.....	.....
528 Woodhouse	26	27	3,027	5,121	.....	.....	.....
529 Woolwich	148	16	5,964	11,077	.....	.....	2,131
530 Worthington and Blue	.....	.....	.....	992	.....	.....	.....
531 Yarmouth	154	95	9,698	16,060	34	.....	.....
532 Yonge, Front	152	137	1,267	4,224	.....	.....	.....
533 Yonge and Escott, Rear	.....	203	2,127	5,135	16	.....	.....
534 York, York	1,813	1,327	14,065	36,485	.....	138	5,330
535 Zone	19	5	860	2,475	1,438	.....	.....
536 Zorra E.	203	215	6,573	7,877	4,231	.....	.....
537 Zorra West	477	35	7,538	6,177	5,771	.....	1,221

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets on Dec. 31, 1909.			
School debentures redeemed.	Drainage debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	Sinking Fund investments and deposits.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	1,900	32	.....	423	24,636	891	1,243	.....	487
200	.....	.....	15,990	505	.....	457	46,165	.....	1,050	.....	488
166	254	880	18,747	1,183	.....	216	55,406	5,025	345	.....	489
.....	.....	.....	1,000	9	.....	38	6,360	.....	2,846	.....	490
.....	97	.....	.....	25	.....	251	10,232	1,701	107	.....	491
.....	.....	.....	.....	2	.....	38	20,665	1,776	710	.....	492
.....	.....	.....	.....	.....	.....	180	15,455	8,381	37	.....	493
.....	.....	77	2,100	80	.....	211	14,296	98	923	.....	494
239	.....	.....	.....	169	.....	8	5,750	243	1,620	.....	495
.....	.....	.....	.....	.....	.....	279	49,637	5,821	4,445	.....	496
882	.....	328	.....	665	.....	118	13,741	2,746	.....	.....	497
100	305	.....	.....	111	.....	73	15,370	1,255	1,745	.....	498
145	1,614	.....	1,253	367	.....	235	21,388	162	3,460	.....	499
.....	.....	.....	400	902	.....	64	18,541	893	890	13,532	500
686	.....	393	9,000	727	.....	1,023	46,634	1,165	61	.....	501
.....	.....	.....	2,000	.....	.....	416	16,278	126	1,795	.....	502
.....	.....	.....	3,311	103	.....	263	14,170	.....	1,024	.....	503
500	2,040	.....	7,000	309	.....	447	32,013	3,772	.....	.....	504
244	343	666	1,200	399	.....	675	40,740	6,908	155	.....	505
.....	.....	.....	583	17	.....	.....	2,939	98	259	.....	506
275	.....	.....	.....	43	.....	310	3,871	387	2,056	.....	507
359	75	118	1,800	426	.....	10	14,418	1,674	225	.....	508
150	60	.....	1,300	62	.....	37	12,807	537	58	.....	509
290	494	453	3,784	1,061	.....	490	39,632	6,531	464	.....	510
328	.....	.....	3,251	378	.....	131	17,856	.....	7,264	.....	511
.....	1,277	.....	8,000	260	.....	391	51,414	5,717	4,744	.....	512
.....	.....	.....	9,944	141	.....	157	24,707	752	53	.....	513
132	.....	.....	4,468	106	.....	93	21,310	144	801	.....	514
.....	.....	.....	3,750	15	.....	296	21,720	14	1,107	.....	515
381	.....	.....	3,557	490	.....	478	14,344	3	3,815	.....	516
120	.....	.....	.....	24	.....	82	8,119	355	1,514	.....	517
.....	.....	.....	3,747	53	.....	72	18,390	2,674	146	.....	518
.....	.....	.....	7,200	78	.....	46	18,460	1,013	154	.....	519
.....	5,018	.....	4,738	1,796	.....	349	38,787	.....	430	.....	520
.....	227	.....	.....	11	.....	29	6,890	1,048	1,261	.....	521
378	.....	.....	4,147	336	.....	501	35,837	2,294	.....	.....	522
.....	5,062	.....	12,172	2,652	.....	73	65,197	.....	2,980	.....	523
155	.....	.....	.....	53	.....	260	21,721	706	699	.....	524
.....	.....	830	.....	658	.....	132	12,715	761	5,638	.....	525
.....	.....	.....	900	153	.....	52	11,412	399	331	.....	526
107	.....	.....	.....	39	.....	2	3,688	655	1,979	.....	527
.....	.....	.....	.....	24	.....	100	11,404	1	426	.....	528
567	.....	3,393	1,000	1,560	.....	203	30,318	1,058	8	.....	529
231	.....	.....	2,781	71	.....	30	4,731	96	3,136	.....	530
1,588	358	.....	20,605	1,100	.....	1,978	77,362	.....	8,098	.....	531
.....	.....	.....	1,352	63	.....	6	10,336	176	9	.....	532
.....	.....	.....	1,172	21	.....	93	10,193	37	.....	.....	533
8,320	.....	2,377	.....	13,616	.....	1,352	140,071	65,416	35,371	.....	534
.....	1,934	198	7,900	501	.....	133	19,886	186	6,139	.....	535
276	2,568	.....	7,000	796	.....	389	39,674	7,934	841	.....	536
.....	3,118	454	5,997	2,434	.....	1,358	41,670	9,074	585	.....	537

STATISTICS OF ONTARIO TOWNSHIP

RECEIPTS, DISBURSEMENTS,

Township Municipalities.	Assets on December 31, 1909.—*Continued.*			
	All other investments and deposits.	Other property.	Miscellaneous.	Total assets.
	$	$	$	$
487 Townsend	.....	5,000	.....	7,134
488 Trafalgar	45,173	2,506	2,395	51,124
489 Tuckersmith	17,700	17,550	.....	40,620
490 Tudor and Cashel	.....	286	.....	3,132
491 Turnberry	.....	125	.....	1,933
492 Tyendinaga	.....	1,000	.....	3,486
493 Usborne	.....	600	.....	9,018
494 Uxbridge	.....	1,225	.....	2,246
495 Van Horne	.....	1,575	3,011	6,449
496 Vaughan	35,332	1,700	456	47,754
497 Verulam	.....	1,325	3,372	7,443
498 Vespra	.....	700	1,100	4,800
499 Wainfleet	26,000	3,300	14,175	47,097
500 Wallace	.....	400	712	16,427
501 Walpole	.....	1,450	4,506	7,182
502 Walsingham N.	.....	1,470	60	3,451
503 Walsingham S.	.....	1,750	400	3,174
504 Warwick	.....	800	2,785	7,357
505 Waterloo	36,065	1,000	3,938	48,066
506 Waters	.....	100	.....	457
507 Watt	.....	.....	475	2,918
508 Wawanosh, E.	.....	.....	2,844	4,743
509 Wawanosh, W.	.....	1,000	648	2,243
510 Wellesley	12,332	500	4,446	24,273
511 Westmeath	.....	1,145	8,011	16,420
512 Westminster	.....	.....	5,000	15,461
513 Whitby	.....	1,000	450	2,255
514 Whitby, E.	3,200	1,450	736	6,331
515 Whitchurch	14,599	447	162	16,329
516 Widdifield	.....	325	5,484	9,627
517 Wilberforce and Algona N.	.....	180	480	2,529
518 Williams, E.	.....	.....	.....	2,820
519 Williams, W.	.....	50	37	1,254
520 Williamsburg	.....	1,150	2,034	3,614
521 Willoughby	.....	1,200	.....	3,509
522 Wilmot	.....	1,300	3,755	7,349
523 Winchester	.....	1,785	15,617	20,382
524 Windham	.....	5,300	2,003	8,708
525 Wolfe Island	.....	2,362	20,000	28,761
526 Wolford	.....	750	70	1,550
527 Wollaston	.....	1,000	535	4,169
528 Woodhouse	.....	.....	.....	427
529 Woolwich	8,131	200	6,768	16,165
530 Worthington and Blue	.....	.....	269	3,501
531 Yarmouth	.....	4,000	16,571	28,669
532 Yonge, Front	.....	1,000	.....	1,185
533 Yonge and Escott, Rear	.....	2,775	31	2,843
534 York, York	21,002	1,428	208,167	331,384
535 Zone	.....	650	100	7,075
536 Zorra E.	.....	2,900	6,227	17,902
537 Zorra West	10,671	451	.....	20,781

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on December 31, 1909.										
County levy.	Local school rates.	Railway debentures.	School debentures.	Drainage debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	$	
.....	429	.....	.....	.....	.....	.....	.....	.....	429	487
.....	.....	.....	400	.....	.....	1,027	.....	480	1,907	488
.....	.....	.....	1,680	.....	33,303	.....	.....	800	35,783	489
293	1,702	.....	.....	.....	.....	241	.....	25	2,261	490
.....	.....	.....	.....	437	.....	.....	.....	.....	437	491
.....	.....	.....	.....	.....	.....	.....	.....	740	740	492
.....	200	.....	.....	.....	.....	.....	.....	140	340	493
.....	158	.....	.....	.....	653	.....	.....	.....	811	494
.....	.....	.....	2,761	.....	.....	.....	.....	61	2,822	495
8,670	68	.....	.....	.....	.....	.....	.....	409	9,147	496
.....	.....	11,700	2,981	.....	.....	.....	.....	.....	14,681	497
.....	.....	.....	1,100	1,351	.....	.....	.....	160	2,611	498
.....	300	.....	3,220	7,012	.....	.....	.....	.....	10,532	499
.....	.....	20,000	.....	.....	.....	.....	.....	65	20,065	500
.....	.....	.....	4,391	.....	4,051	.....	.....	.....	8,442	501
.....	895	.....	.....	.....	.....	.....	.....	25	920	502
.....	214	.....	400	.....	.....	893	.....	130	1,637	503
.....	.....	.....	.....	2,520	.....	.....	.....	592	3,112	504
.....	.....	.....	3,685	641	2,941	.....	.....	.....	7,267	505
.....	.....	.....	.....	.....	.....	.....	.....	9	9	506
.....	693	.....	475	.....	.....	150	.....	401	1,719	507
.....	42	2,454	2,843	2,353	.....	.....	.....	230	7,922	508
.....	.....	.....	450	420	.....	.....	.....	270	1,140	509
.....	.....	10,289	4,446	13,042	.....	.....	.....	900	28,677	510
.....	.....	.....	7,912	.....	.....	3,501	.....	.....	11,413	511
6,694	.....	.....	5,000	138	.....	.....	.....	.....	11,832	512
.....	32	.....	.....	.....	.....	.....	.....	179	211	513
.....	85	.....	427	.....	.....	1,012	.....	90	1,614	514
.....	.....	.....	.....	.....	.....	3,847	.....	128	3,975	515
.....	121	.....	4,984	.....	.....	4,409	.....	.....	9,514	516
.....	159	.....	480	.....	.....	.....	.....	207	846	517
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	518
.....	58	.....	.....	.....	.....	.....	.....	64	122	519
.....	.....	.....	.....	26,535	.....	3,623	.....	.....	30,158	52?
.....	.....	.....	.....	585	.....	.....	.....	1 013	1,598	52
.....	.....	.....	3,755	.....	.....	.....	.....	113	3,868	52
.....	896	.....	1,306	48,072	.....	22,237	.....	232	72,743	523
.....	.....	.....	898	.....	.....	.....	.....	254	1,152	524
4,479	.....	.....	.....	.....	15,626	.....	.....	.....	20,105	525
.....	.....	.....	.....	.....	.....	2,500	.....	.....	2,500	526
325	958	.....	535	.....	.....	.....	.....	62	1,880	527
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52
.....	.....	.....	6,706	.....	26,072	.....	.....	.....	32,778	529
.....	1,897	.....	269	.....	.....	.....	.....	111	2,277	530
9,698	493	.....	15,408	2,542	.....	329	.....	582	29,052	531
.....	6	.....	.....	.....	.....	.....	.....	6	12	532
.....	.....	.....	.....	.....	.....	.....	.....	352	352	533
16,834	76,918	.....	*183,965	.....	22,703	.....	.....	2,938	303,358	534
941	2,478	.....	.....	7,083	.....	2,500	.....	1,056	14,058	535
.....	.....	.....	1,588	15,414	.....	.....	.....	5,710	22,712	536
.....	.....	14,546	.....	20,877	.....	5,630	.....	.....	41,053	537

* Omitting $40,000 transferred to Toronto City *re* Glen Road Bridge debentures assumed by city.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

	Village and Town Municipalities and Counties in which located.	Receipts, 1909.							
		Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Water, electric light and gas rates.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
		$	$	$	$	$	$	$	$
1	Acton, Halton	1,456	9,185	353	172	2,808	117	3,000	2,000
2	Ailsa Craig, Middlesex	120	4,323	188	146	.....	8	107	.....
3	Alexandria, Glengarry	1,829	15,831	450	80	8,068	20	.....	10,600
4	Alliston, Simcoe	.....	12,542	659	122	1,268	509	5,966	20,291
5	Almonte, Lanark	6,009	22,404	687	390	7,240	277	1,632	6,275
6	Alvinston, Lambton	.....	6,887	152	27	.....	59	.....	6,678
7	Amherstburg, Essex	953	21,965	880	712	4,240	.....	.....	5,451
8	Arkona, Lambton	431	2,188	.....	64	.....	5	.....	200
9	Arnprior, Renfrew	6,006	39,500	1,588	431	5,821	707	.....	12,980
10	Arthur, Wellington	792	8,612	141	106	.....	169	.....	3,000
11	Athens, Leeds	1,244	6,010	10	365	.....	12	.....	.....
12	Aurora, York	660	13,032	392	7	1,733	.....	.....	8,000
13	Aylmer, Elgin	.....	28,633	674	446	10,994	248	12,046	44,310
14	Ayr, Waterloo	28	5,261	260	9	.....	68	.....	.....
15	Bancroft, Hastings	43	2,860	198	125	.....	.....	.....	.....
16	Barrie, Simcoe	2,889	64,222	3,221	1,005	32,044	2,684	3,397	3,871
17	Bath, Lennox and Addington	112	2,191	197	55	.....	81	.....	.....
18	Bayfield, Huron	35	1,956	200	72	.....	.....	75	150
19	Beamsville, Lincoln	1,608	7,348	.....	146	507	65	335	6,121
20	Beaverton, Ontario	231	5,279	198	11	.....	619	200	5,000
21	Beeton, Simcoe	1,951	4,766	156	79	3,473	.....	.....	1,500
22	Belle River, Essex	1,755	1,824	417	53	.....	.....	.....	500
23	Berlin, Waterloo	4,066	176,104	4,001	3,688	228,298	4,127	34	199,000
24	Blenheim, Kent	1,286	10,999	336	672	3,280	200	.....	21,956
25	Blind River, Algoma	4,036	12,974	2,138	442	.....	133	656	35,000
26	Bloomfield, Prince Edward	394	2,982	.....	46	.....	9	.....	.....
27	Blyth, Huron	2,269	6,454	228	252	.....	105	546	2,005
28	Bobcaygeon, Victoria	6,008	7,083	300	147	.....	46	.....	.....
29	Bolton, Peel	158	4,417	.....	469	.....	.....	.....	1,500
30	Bonfield, Nipissing	555	1,289	280	2	.....	.....	.....	.....
31	Bothwell, Kent	3,831	4,599	296	556	2,321	22	.....	7,485
32	Bowmanville, Durham	27	30,118	30	855	414	212	1,591	23,150
33	Bracebridge, Muskoka	7,735	22,269	1,133	200	19,155	326	524	5,436
34	Bradford, Simcoe	750	9,546	144	117	.....	.....	.....	.....
35	Brampton, Peel	.....	36,010	853	218	5,325	.....	1,472	13,171
36	Bridgeburg, Welland	2,778	15,384	446	.....	3,426	7	96	2,751
37	Brighton, Northumberland	.....	9,914	.....	122	.....	.....	.....	5,692
38	Brockville, Leeds	881	101,018	4,480	3,075	82,241	7,786	19,261	241,864
39	Bruce Mines, Algoma	1,719	3,459	277	7	.....	1	.....	12,300
40	Brussels, Huron	1,606	9,563	401	424	.....	1,273	1,935	1,845
41	Burk's Falls, Parry Sound	78	7,999	270	.....	1,210	681	907	5,750
42	Burlington, Halton	18	10,509	208	50	.....	103	.....	9,843
43	Cache Bay, Nipissing	360	3,607	193	10	.....	.....	.....	355
44	Caledonia, Haldimand	567	7,477	398	36	.....	.....	.....	2,000
45	Campbellford, Northumber'd	1,805	22,664	110	1,125	4,650	775	500	10,357
46	Cannington, Ontario	.....	6,019	264	32	.....	.....	.....	2,765
47	Cardinal, Grenville	224	5,516	75	310	.....	.....	.....	7,067
48	Carleton Place, Lanark	.....	28,418	1,093	786	.....	16	1,000	10,005

MUNICIPALITIES. FOR THE YEAR 1909.

ASSETS AND LIABILITIES.

Receipts, 1909.—*Continued.*						Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Lighting of streets, water supply and fire protection.	Law costs.	Other expenses of municipal government.	Streets, bridges and parks.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	412	243	19,746	740	1,375	57	2,089	1,465	1
.....	.....	.....	....	106	4,998	189	3	39	273	1,414	2
5,500	.....	290	....	767	43,435	491	4,220	9	3,841	3,583	3
.....	3,576	.....	7	522	45,462	1,062	1,996	273	413	1,304	4
.....	16,700	688	....	424	62,726	729	2,260	25	6,042	17,295	5
.....	3,000	.....	....	409	17,212	427	1,028	35	266	3,851	6
.....	.....	.....	....	169	34,370	838	4,168	100	1,008	2,182	7
.....	.....	.....	....	115	3,003	271	256	5	56	283	8
.....	2,467	.....	309	790	70,599	1,663	8,705	460	656	5,261	9
6,200	7,832	144	19	545	27,560	389	631	22	492	1,213	10
.....	8,575	.....	....	133	16,349	580	18	.....	91	9,268	11
.....	4,800	.....	....	287	28,911	849	1,024	106	1,517	2,265	12
.....	5,973	.....	....	*6,903	110,227	898	10,906	6	1,330	3,468	13
.....	.....	.....	....	88	5,714	165	693	.....	121	777	14
.....	.....	.....	200	226	3,652	240	286	33	119	377	15
.....	95,000	359	....	212	208,904	2,018	15,348	1,847	†18,656	14,719	16
.....	.....	.....	118	33	2,787	115	48	1	190	137	17
.....	.....	.....	....	61	2,549	131	.....	.....	125	612	18
.....	.....	.....	....	523	16,653	570	1,003	382	218	153	19
7,000	.....	.....	25	93	18,656	343	742	30	198	547	20
.....	.....	.....	188	66	12,179	325	2,359	.....	225	1,414	21
.....	.....	.....	....	79	4,628	139	5	149	170	1,347	22
13,000	102,163	6,868	602	15,528	757,479	9,099	40,375	2,036	‡153,758	57,520	23
.....	5,289	52	....	356	44,426	613	3,915	111	827	772	24
.....	18,000	.....	....	1,101	74,480	977	2,827	455	720	4,334	25
.....	8,000	235	125	335	12,126	88	7	.....	130	6,494	26
.....	.....	.....	....	75	11,934	730	1,597	2	141	343	27
.....	.....	.....	....	152	13,736	189	1,118	17	254	868	28
.....	.....	.....	....	66	6,610	197	230	.....	361	620	29
.....	.....	.....	....	43	2,169	158	.....	7	46	492	30
.....	.....	.....	....	95	19,205	289	804	42	2,552	1,586	31
.....	650	.....	....	1,100	58,147	1,219	3,342	377	922	2,917	32
.....	4,570	192	....	426	61,966	1,649	4,284	703	4,198	4,353	33
.....	3,630	68	300	172	14,727	705	568	.....	143	3,092	34
.....	.....	.....	....	973	58,022	1,733	4,129	383	1,340	12,079	35
.....	.....	.....	....	661	25,549	513	4,234	100	697	6,177	36
.....	.....	.....	....	68	15,796	826	740	10	179	13,781	37
.....	18,872	154	....	2,530	482,162	3,544	21,021	625	‖14,013	22,009	38
.....	10,000	.....	....	827	28,590	291	340	399	211	445	39
.....	18,500	.....	....	16	35,563	594	598	2	431	318	40
.....	.....	.....	....	143	17,038	596	747	81	234	1,143	41
.....	52,163	.....	516	622	74,032	990	926	5	432	4,662	42
.....	.....	.....	....	734	5,259	126	452	78	96	533	43
.....	10,000	37	....	226	20,741	360	377	9	191	989	44
.....	50,000	3,106	....	147	95,239	953	3,800	113	650	1,339	45
.....	.....	.....	....	238	9,318	359	535	20	106	2,004	46
.....	.....	.....	....	406	13,598	312	672	18	121	618	47
.....	8,200	.....	....	526	50,044	1,951	2,701	353	628	4,329	48

* Including $7,000 insurance on waterworks and electric light plant.
† Including $16,922 for electric-light and power maintenance and operation.
‡ Including $149,843 for maintenance and operation of public utilities.
‖ Including $11,500 for maintenance and operation of public utilities.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Disbursements, 1909.—*Continued.*

Villages and Towns.	Waterworks and electric light construction.	Buildings and other works.	Board of Health.	Support of the poor and other charities.	Administration of justice, including police services.	County Treasurer for levies.	Payment on account of schools and education.	Sinking Fund investments and deposits.
	$	$	$	$	$	$	$	$
1 Acton	.....	45	26	208	35	1,243	3,150	1,608
2 Ailsa Craig	.....	.....	120	74	.....	487	1,230	.....
3 Alexandria	.....	91	.....	39	654	1,423	8,348	.....
4 Alliston	.....	76	20	137	127	1,196	3,500	6,554
5 Almonte	.....	.....	78	270	492	2,129	8,332	1,330
6 Alvinston	.....	28	11	31	16	.....	2,122	.....
7 Amherstburg	2,126	.....	71	34	590	1,984	7,040	.....
8 Arkona	.....	.....	.....	46	9	201	880	.....
9 Arnprior	1,370	.....	125	192	1,250	2,020	12,050	7,583
10 Arthur	.....	.....	30	27	452	.....	3,150	.....
11 Athens	.....	355	.....	20	.....	279	2,843	.....
12 Aurora	1,138	.....	374	30	6	.....	3,800	.....
13 Aylmer	13,860	.....	690	116	511	1,575	5,611	.....
14 Ayr	.....	.....	.....	.....	101	415	2,075	148
15 Bancroft	.....	.....	.....	39	49	439	1,455	233
16 Barrie	28,104	.....	647	871	2,537	5,078	22,627	.....
17 Bath	.....	53	.....	78	5	400	1,181	.....
18 Bayfield	.....	.....	5	6	52	226	1,025	.....
19 Beamsville	529	.....	.....	35	150	1,403	2,780	.....
20 Beaverton	.....	.....	6	111	21	531	6,760	.....
21 Beeton	.....	.....	.....	9	6	498	1,701	.....
22 Belle River	.....	183	.....	86	6	249	884	.....
23 Berlin	61,305	2,017	3,101	2,291	3,329	12,994	53,527	.....
24 Blenheim	1,141	.....	46	60	615	428	3,190	.....
25 Blind River	.....	8,355	146	346	933	.....	5,700	1,029
26 Bloomfield	.....	1,118	23	13	6	390	1,202	.....
27 Blyth	.....	.....	5	65	7	433	1,500	.....
28 Bobcaygeon	.....	138	30	5	468	531	2,170	.....
29 Bolton	.....	.....	240	28	107	216	1,490	.....
30 Bonfield	.....	.....	.....	11	36	.....	1,021	.....
31 Bothwell	.....	.....	.....	180	490	199	1,800	.....
32 Bowmanville	500	950	.....	673	1,425	1,906	7,450	.....
33 Bracebridge	9,318	243	251	86	649	.....	7,764	62
34 Bradford	.....	.....	25	.....	40	729	3,600	.....
35 Brampton	6,203	.....	374	244	448	1,684	9,350	.....
36 Bridgeburg	1,006	.....	.....	174	243	1,113	5,569	.....
37 Brighton	.....	.....	40	139	5	924	2,600	.....
38 Brockville	17,622	719	686	1,983	6,844	.....	27,911	14,560
39 Bruce Mines	.....	77	55	105	9	.....	1,840	.....
40 Brussels	.....	16,395	15	35	150	.....	2,314	3,427
41 Burk's Falls	.....	733	10	19	171	.....	2,900	109
42 Burlington	47,694	401	15	154	58	1,548	2,665	.....
43 Cache Bay	.....	564	18	38	150	.....	2,209	.....
44 Caledonia	.....	.....	.....	110	12	413	.....	.....
45 Campbellford	.....	52,600	911	64	900	1,432	7,310	.....
46 Cannington	.....	.....	.....	56	22	769	2,105	.....
47 Cardinal	.....	450	3	50	16	366	2,482	.....
48 Carleton Place	.....	5,550	101	213	375	2,841	10,169	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets Dec. 31, '09		
Other investments and deposits.	School debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	No.
$	$	$	$	$	$	$	$	$	$	
.....	.....	3,591	2,000	1,436	.....	500	19,568	178	694	1
114	.....	469	.....	410	.....	50	4,872	126	100	2
.....	85	2,297	13,000	3,217	.....	299	41,597	1,838	840	3
.....	101	767	24,741	2,785	.....	362	45,414	48	4,864	4
6,327	.....	2,673	6,275	4,890	.....	67	59,214	3,512	200	5
.....	158	786	7,562	685	.....	50	17,056	156	141	6
1,253	.....	5,722	1,120	5,204	.....	927	34,367	3	3,992	7
.....	.....	234	200	119	.....	117	2,677	326	47	8
.....	164	2,784	6,890	12,672	.....	287	64,132	6,467	32,725	9
.....	483	899	16,652	1,906	.....	347	26,693	867	964	10
156	225	720	.....	994	.....	.....	15,549	800	81	11
.....	276	1,593	11,000	1,762	232	480	26,452	2,459	1,136	12
11,035	.....	8,755	44,436	6,386	.....	644	110,227	.....	2,501	13
.....	.....	325	.....	425	.....	251	5,496	218	120	14
.....	.....	.....	.....	122	.....	90	3,482	170	2,464	15
40,000	1,058	14,764	9,586	11,582	.....	848	190,290	18,614	5,520	16
.....	.....	.....	275	14	.....	20	2,517	270	564	17
.....	.....	145	150	51	.....	10	2,538	11	40	18
.....	.....	1,355	5,704	1,900	.....	225	16,407	246	310	19
.....	.....	200	6,000	535	48	110	16,182	2,474	213	20
.....	.....	1,146	1,500	1,429	.....	155	10,767	1,412	419	21
.....	.....	303	225	96	.....	135	3,977	651	177	22
40,491	1,507	40,921	219,600	47,631	.....	5,927	757,429	50	2,785	23
.....	199	2,589	27,503	1,593	.....	819	44,421	5	1,693	24
.....	.....	379	44,688	1,333	1,039	658	73,919	561	3,431	25
.....	.....	255	350	395	.....	265	10,736	1,390	.....	26
.....	155	1,662	2,005	1,089	.....	288	10,022	1,912	158	27
.....	.....	448	.....	1,455	.....	96	7,787	5,949	75	28
.....	.....	193	2,300	294	.....	188	6,464	146	47	29
.....	.....	.....	.....	.....	.....	9	1,780	389	915	30
.....	.....	1,362	6,514	948	.....	113	16,879	2,326	2,452	31
.....	.....	5,546	24,375	5,144	.....	1,353	58,099	48	2,069	32
.....	347	5,943	14,119	7,009	.....	988	61,966	.....	9,344	33
.....	188	.....	.....	59	.....	56	9,205	5,522	134	34
.....	.....	6,952	2,650	8,929	.....	1,451	57,949	73	5,160	35
50	278	1,229	2,000	1,790	.....	376	25,549	.....	811	36
.....	.....	554	5,499	167	.....	332	15,796	.....	2,443	37
39,315	6,318	20,553	246,631	35,188	.....	2,459	482,001	161	18,177	38
10,000	.....	.....	12,300	55	.....	815	26,942	1,648	1,482	39
2,964	.....	1,700	1,845	2,040	.....	675	33,503	2,060	216	40
.....	380	1,776	4,875	2,780	.....	300	16,854	184	409	41
.....	178	1,578	10,887	1,278	.....	345	73,816	216	750	42
.....	194	417	.....	374	.....	10	5,259	.....	648	43
461	.....	302	14,900	822	.....	614	19,560	1,181	300	44
.....	609	5,077	13,800	5,447	.....	234	95,239	.....	1,957	45
.....	.....	263	2,582	303	.....	194	9,318	.....	1,708	46
.....	264	.....	7,706	252	.....	193	13,523	75	335	47
.....	.....	5,000	10,569	3,597	.....	1,660	50,037	7	309	48

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Villages and Towns.	Assets on Dec. 31, 1909.—*Continued.*						Liabilities Dec. 31	
	Sinking Fund investments and deposits.	All other investments and deposits.	Waterworks and electric light plant.	Other property.	Miscellaneous.	Total assets.	County levy.	Local school rates.
	$	$	$	$	$	$	$	$
1 Acton	7,725	.....	8,200	19,600	7,652	44,049	.....	.....
2 Ailsa Craig	.....	119	.....	9,550	.....	9,895	.....	.....
3 Alexandria	.....	.....	45,455	3,545	1,736	53,414	.....	1,472
4 Alliston	19,445	.....	19,341	9,895	1,145	54,738	.....	.....
5 Almonte	7,010	6,327	38,000	60,700	3,000	118,749	.....	.....
6 Alvinston	.....	.....	.....	3,478	484	4,259	487	32
7 Amherstburg	.....	1,253	45,900	15,350	27,659	94,157	.....	3,125
8 Arkona	.....	.....	.....	2,035	65	2,473	.....	.....
9 Arnprior	58,393	30,000	115,441	36,163	791	279,980	869	7,180
10 Arthur	.....	.....	.....	4,200	10,306	16,337	760	696
11 Athens	.....	156	.....	13,968	352	15,357	.....	.....
12 Aurora	.....	.....	26,800	9,000	.....	39,395	1,160	2,700
13 Aylmer	.....	29,087	105,000	15,325	.....	151,913	.....	.....
14 Ayr	2,034	.....	.....	5,345	.....	7,717	.....	.....
15 Bancroft	466	.....	.....	3,750	171	7,021	.....	1,150
16 Barrie	.....	78,968	205,475	57,000	12,404	377,981	.....	11,316
17 Bath	.....	2,000	.....	1,700	.....	4,534	.....	700
18 Bayfield	.....	1,125	.....	650	.....	1,826	.....	.....
19 Beamsville	.....	1,165	27,200	2,750	49	31,720	1,182	47
20 Beaverton	.....	10,200	.....	3,700	7,891	24,478	.....	100
21 Beeton	.....	.....	41,000	7,050	417	50,298	.....	1,498
22 Belle River	.....	.....	.....	800	14	1,642	.....	.....
23 Berlin	.....	40,491	546,720	363,228	300,131	1,253,405	.....	.....
24 Blenheim	.....	.....	15,500	21,407	3,003	41,608	471	132
25 Blind River	2,950	.....	.....	19,825	720	27,487	.....	3,500
26 Bloomfield	.....	.....	.....	2,600	174	4,164	.....	.....
27 Blyth	.....	8,515	1,220	4,250	8,801	24,856	.....	1,100
28 Bobcaygeon	.....	2,788	25,000	6,800	200	40,812	.....	2,300
29 Bolton	.....	.....	.....	1,415	170	1,778	.....	.....
30 Bonfield	.....	.....	.....	.....	.....	1,304	.....	604
31 Bothwell	.....	.....	10,700	11,140	231	26,849	.....	.....
32 Bowmanville	.....	22,208	.....	33,746	31,714	89,785	.....	.....
33 Bracebridge	2,087	20,653	113,000	29,897	31,480	206,461	.....	.....
34 Bradford	.....	.....	.....	8,650	.....	14,306	729	3,702
35 Brampton	.....	19,116	125,000	25,475	35,876	210,700	.....	.....
36 Bridgeburg	.....	50	49,787	8,600	1,367	60,615	10	2,100
37 Brighton	.....	.....	140	7,175	1,323	11,081	.....	1,000
38 Brockville	190,677	80,194	370,474	111,931	183,482	955,096	.....	.....
39 Bruce Mines	.....	10,000	.....	825	517	14,472	.....	2,273
40 Brussels	19,941	7,051	.....	24,050	273	53,591	514	.....
41 Burk's Falls	1,389	13,113	34,400	3,998	1,128	54,621	.....	2,534
42 Burlington	.....	2,000	48,300	8,332	25,039	84,637	.....	.....
43 Cache Bay	.....	.....	1,500	4,374	180	6,702	.....	.....
44 Caledonia	.....	461	.....	6,700	.....	8,642	.....	2,800
45 Campbellford	.....	15,390	23,000	132,700	100	173,147	.....	.....
46 Cannington	.....	.....	.....	8,975	2,476	13,159	.....	.....
47 Cardinal	.....	.....	.....	3,400	715	4,525	.....	.....
48 Carleton Place	.....	8,000	.....	74,500	1,970	84,786	.....	7,302

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on Dec. 31, 1909.—*Continued.*

Railway debentures.	School debentures.	Waterworks debentures.	Electric light debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	
.....	5,500	.....	10,500	18,027	.....	.....	.....	34,027	1
.....	.....	.....	.....	8,844	.....	.....	.....	8,844	2
.....	7,616	24,541	10,652	17,154	3,618	.....	.....	65,053	3
.....	4,621	15,800	.....	49,410	.....	.....	.....	69,831	4
.....	.....	.....	33,886	66,256	.....	.....	260	100,402	5
.....	1,396	.....	.....	9,114	178	.....	29	11,236	6
8,447	.....	19,424	447	62,520	27,080	.....	1,070	122,113	7
.....	.....	.....	.....	2,628	.....	.....	4	2,632	8
30,000	2,938	70,033	.....	144,429	57,000	.....	.....	312,449	9
.....	11,112	.....	.....	16,651	.....	.....	178	29,397	10
.....	2,460	.....	.....	16,584	.....	.....	.....	19,044	11
.....	4,613	16,585	.....	14,240	.....	.....	.....	39,298	12
.....	.....	58,621	12,892	37,020	13,039	.....	1,401	122,973	13
.....	2,200	.....	.....	6,267	.....	.....	.....	8,467	14
.....	.....	.....	.....	2,700	650	233	381	5,114	15
.....	28,859	88,011	61,424	186,158	3,871	.....	3,043	382,682	16
.....	.....	.....	.....	.....	.....	.....	54	754	17
.....	.....	.....	.....	841	.....	.....	.....	841	18
.....	.....	15,479	.....	22,144	3,550	.....	1,593	43,995	19
.....	7,000	.....	.....	9,200	400	.....	.....	16,700	20
.....	.....	9,330	1,996	6,050	.....	.....	.....	18,874	21
.....	.....	.....	.....	678	275	.....	208	1,161	22
.....	67,489	94,680	325,977	559,475	30,000	.....	40,229	1,117,850	23
1,093	3,225	.....	1,686	18,685	1,756	.....	1,103	28,151	24
.....	10,000	.....	.....	22,621	.....	.....	213	36,334	25
.....	.....	.....	.....	7,745	350	.....	2,880	10,975	26
2,710	3,911	.....	.....	16,277	.....	.....	.....	23,998	27
8,926	.....	.....	.....	23,714	.....	.....	.....	34,940	28
.....	.....	.....	.....	6,317	.....	.....	.....	6,317	29
.....	.....	.....	.....	.....	.....	.....	31	635	30
.....	.....	4,142	2,496	7,778	5,471	.....	.....	19,887	31
.....	.....	.....	.....	100,977	2,735	.....	.....	103,712	32
.....	8,003	35,332	41,266	48,368	16,419	2,598	1,644	153,630	33
.....	854	.....	.....	3,630	.....	.....	150	9,065	34
.....	.....	.....	.....	167,524	75,788	.....	1,000	244,312	35
.....	5,722	33,615	.....	1,701	751	.....	319	44,218	36
.....	.....	.....	.....	1,183	1,112	.....	.....	3,295	37
.....	26,380	221,785	123,577	420,543	42,152	.....	215	834,652	38
.....	.....	.....	.....	10,000	.....	.....	1,865	14,138	39
.....	7,500	.....	.....	55,965	.....	.....	.....	63,979	40
.....	3,260	33,209	.....	15,113	1,275	.....	906	56,297	41
.....	1,489	47,200	.....	25,999	5,843	.....	521	81,052	42
.....	1,121	.....	.....	4,185	1,455	.....	670	7,431	43
2,000	.....	.....	.....	9,698	.....	.....	150	14,648	44
.....	.....	7,535	10,120	128,945	5,284	.....	547	152,431	45
.....	.....	.....	.....	2,248	2,765	.....	.....	5,013	46
.....	874	.....	.....	.....	1,361	.....	.....	2,235	47
13,900	.....	.....	.....	78,100	30	.....	324	99,656	48

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Village and Town Municipalities and Counties in which located.	Receipts, 1909.							
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Water, electric light and gas rates.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$	$
49 Casselman, Russell	651	2,533	208	10				724
50 Cayuga, Haldimand	346	6,034	353	306				1,500
51 Chatsworth, Grey	681	1,995	52	161		15		
52 Chesley, Bruce	15,055	14,376	380	559	1,733	271		7,972
53 Chesterville, Dundas	555	5,784	162	151				1,645
54 Chippawa, Welland	1,777	2 810	381	150		18		
55 Clifford, Wellington	964	2,881	209	49	778			
56 Clinton, Huron	4,030	21,847	1 116	777		4,140	1,479	1,500
57 Cobalt, Nipissing	2,496	36,722	4,519	4,375	2,828			37,646
58 Cobden, Renfrew	794	2,964	248	9				369
59 Cobourg, Northumberland	965	44,562	2,994	6,597				24,401
60 Colborne, Northumberland	826	6,750	1	50				2,000
61 Coldwater, Simcoe	110	5,504	55	53		4	500	1,300
62 Collingwood, Simcoe	29,513	76,878	3,145	2,966	24,884	1,623	518	17,765
63 Copper Cliff, Sudbury	4,220	12,905	60	1,173				1,000
64 Cornwall, Stormont		60,005	2,158	1,288	12,824	97	600	20,583
65 Courtwright, Lambton	374	1,950	181	4				
66 Creemore, Simcoe	1,405	4,723		35	602	24		200
67 Delhi, Norfolk	2,404	4,437	228	7		16		
68 Deseronto, Hastings	28	23,997	630	241	7,483			7,643
69 Drayton, Wellington		5,989	281	457			37	6,805
70 Dresden, Kent	866	14,283	422	226	3,983	104		6,650
71 Dundalk, Grey	591	6,169	361	241	2,171	51		
72 Dundas, Wentworth	735	27,540	1,107	1,726	3,041	892	3,057	18,000
73 Dunnville, Haldimand	414	21,390	1,069	49	3,102	140	976	13,100
74 Durham, Grey	5,856	11,516	45	364	112	192	3,778	
75 Dutton, Elgin	581	6,720	426	111		35		
76 Eastview, Carleton		4,008	318	27				1,300
77 Eganville, Renfrew	2,441	7,118	466	210				
78 Elmira, Waterloo	353	9,794	539	2	329	214	1,236	2,994
79 Elora, Wellington	536	12,648	281	500		32	500	1,500
80 Embro, Oxford	1,888	4,925	230	121		8		
81 Englehart, Nipissing	91	5,166	319	504				3,670
82 Erin, Wellington	256	1,874	188	87				100
83 Essex, Essex		12,860	436	120	2,166	75		1,402
84 Exeter, Huron	3,897	11,066	327	51	297	23		15,633
85 Fenelon Falls, Victoria	2,145	8,787	235	841	5,475	74	3,135	
86 Fergus, Wellington	215	11,642	331	382		90	5	2,943
87 Finch, Stormont	438	1,697	87			7		
88 Forest, Lambton	428	12,086	307	265		3		10,900
89 Fort Erie, Welland	1,522	9,292	902	50		128		2,460
90 Fort Frances, Rainy River	3,365	16,923	898	163	1,926			6,500
91 Galt, Waterloo		121,672	3,350	5,647	23,582	9,534	1,428	37,281
92 Gananoque, Leeds	2,113	37,511	1,032	553	3,657	1,344	1,000	35,296
93 Garden Island, Frontenac	903	1,628						
94 Georgetown, Halton		10,702	375	327	3,550	28	500	4,000
95 Glencoe, Middlesex	108	7,517	254	124		43		13,941
96 Goderich, Huron	50	42,212	1,632	367	25,265	3,218	15,795	113,244

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*						Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Lighting of streets, water supply and fire protection.	Law costs.	Other expenses of municipal government.	Streets, bridges and parks.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	....	20	4,146	200	820	7	45	677	49
.....	.....	.....	....	63	8,602	316	270	4	402	787	50
.....	.....	.....	....	22	2,926	92	.....	15	137	393	51
.....	.....	.....	167	467	40,980	353	2,821	74	434	517	52
.....	1,798	.....	....	142	10,237	258	290	.....	187	1,449	53
.....	.....	.....	....	292	5,428	44	205	25	121	1,080	54
.....	.....	.....	....	99	4,980	179	443	7	61	720	55
.....	53,000	.....	....	787	88,676	1,047	1,926	8	739	1,489	56
.....	100,000	.....	....	*3,204	191,790	3,946	6,575	1,679	1,714	20,545	57
.....	.....	.....	....	161	4,545	296	87	327	119	467	58
.....	1,260	.....	....	339	81,118	3,195	6,476	31	2,160	10,401	59
.....	.....	.....	....	111	9,738	246	667	.....	216	1,860	60
.....	311	.....	....	829	8,666	263	368	22	170	1,538	61
.....	71,994	854	....	†4,817	234,957	2,998	19,026	723	‡19,274	5,358	62
.....	.....	.....	....	411	19,769	982	779	99	250	534	63
2,000	4,568	225	....	1,198	105,546	1,965	9,053	27	1,485	9,643	64
.....	.....	.....	....	103	2,612	78	6	29	217	865	65
.....	.....	.....	....	113	7,102	159	428	.....	85	908	66
.....	.....	.....	....	108	7,200	194	527	.....	162	1,801	67
.....	20,000	.....	....	655	60,677	1,162	6,859	115	5,903	706	68
.....	.....	.....	57	258	13,884	273	828	.....	286	1,002	69
.....	1,120	.....	100	569	28,323	627	4,605	1,493	446	1,884	70
.....	2,700	.....	....	374	12,658	283	357	36	2,678	999	71
16,000	20,000	746	....	5,582	98,426	2,392	4,982	1,010	1,215	6,470	72
.....	.....	.....	....	191	40,431	989	3,846	132	973	3,067	73
.....	11,512	.....	....	1,125	34,500	625	1,473	249	550	1,324	74
.....	.....	.....	....	181	8,054	278	483	5	172	1,080	75
.....	.....	.....	....	638	6,291	318	44	96	170	1,661	76
.....	.....	.....	....	107	10,342	607	427	24	300	1,711	77
.....	8,000	183	325	251	24,220	418	1,881	87	196	1,912	78
.....	.....	.....	169	408	16,574	564	877	22	303	785	79
.....	.....	.....	310	1,088	8,570	170	169	20	388	1,695	80
5,000	.....	.....	....	863	15,613	400	170	.....	185	2,222	81
.....	.....	.....	100	90	2,695	103	51	.....	194	1,016	82
.....	1,746	73	....	365	19,243	638	3,578	15	740	2,004	83
.....	.....	.....	....	¶10,543	41,837	785	2,052	32	645	9,994	84
.....	492	.....	11	108	21,303	310	697	15	2,732	1,274	85
.....	.....	.....	....	2,512	18,120	541	1,051	.....	357	2,235	86
.....	.....	.....	....	131	2,360	62	.....	.....	74	392	87
.....	.....	.....	....	359	24,348	544	953	43	549	1,305	88
10,000	.....	180	....	97	24,631	677	159	344	383	5,976	89
.....	21,603	.....	....	§10,292	61,670	1,102	2,735	291	770	807	90
15,000	7,000	467	2594	3,511	231,066	4,640	24,292	889	3,503	19,885	91
.....	19,621	1,636	....	2,435	106,198	1,328	4,960	32	831	8,136	92
.....	.....	.....	....	19	2,550	25	.....	.....	14	450	93
.....	10,950	117	433	233	31,215	742	1,119	.....	471	5,651	94
.....	11,000	471	....	318	33,776	280	183	10	296	1,280	95
.....	35,000	656	....	1,524	238,963	1,926	16,410	1,479	‖11,801	3,759	96

* Including $1,200 grant from T. N. O. Ry. for general purposes and $1,598 for repayment to waterworks fund.
† Including $2,235 from Collingwood Ship Building Co.
‡ Including $11,044 for maintenance and operation of electric light works.
‖ Including $10,147 for maintenance and operation of public utilities.
¶ Including $9,500 mortgage from Canning Co. *re* loan of 1907.
§ Including $8,936 from sale of debentures incorrectly included in previous returns.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Villages and Towns.	Disbursements, 1909.—*Continued.*							
	Waterworks and electric light construction.	Buildings and other works.	Board of Health.	Support of the poor and other charities.	Administration of justice, including police services.	County Treasurer for levies.	Payment on account of schools and education.	Sinking Fund investments and deposits.
	$	$	$	$	$	$	$	$
49 Casselman	.....	.....	28	.....	10	200	1,125	93
50 Cayuga	.....	.....	19	7	6	371	2,425	.....
51 Chatsworth	.....	.....	16	.....	23	150	967	164
52 CHESLEY	19,250	564	650	33	602	1,106	4,100	1,356
53 Chesterville	.....	38	.....	24	12	357	2,278	.....
54 Chippawa	.....	.....	5	74	30	233	1,200	.....
55 Clifford	145	527	42	39	26	418	1,128	.....
56 CLINTON	33,552	.....	638	77	411	1,095	7,300	4,475
57 COBALT	26,100	16,099	3,521	306	2,978	.....	8,000	7,496
58 Cobden	.....	.....	45	5	5	220	2,000	.....
59 COBOURG	.....	211	2,813	285	1,857	2,830	11,417	1,349
60 Colborne	436	16	88	8	20	634	2,136	.....
61 Coldwater	.....	34	37	10	95	495	3,148	.....
62 COLLINGWOOD	21,635	14,385	1,242	1,332	1,645	5,057	23,777	796
63 COPPER CLIFF	.....	1,944	340	121	1,333	.....	3,488	.....
64 CORNWALL	198	1,100	409	626	3,073	3,247	19,052	.....
65 Courtwright	.....	.....	.....	1	.....	178	760	.....
66 Creemore	.....	.....	18	.....	20	468	1,845	.....
67 Delhi	.....	.....	47	38	20	420	2,093	.....
68 DESERONTO	1,750	194	964	6	958	.....	7,095	.....
69 Drayton	.....	100	27	33	61	390	2,159	.....
70 DRESDEN	275	.....	46	456	454	518	4,814	.....
71 Dundalk	.....	254	11	43	335	300	1,800	.....
72 DUNDAS	258	6,175	1,597	832	1,261	3,500	26,528	2,234
73 DUNNVILLE	1,000	2,549	87	582	609	1,375	6,055	1,655
74 DURHAM	.....	145	103	28	121	675	3,920	.....
75 Dutton	521	.....	71	.....	135	545	1,141	.....
76 Eastview	.....	.....	56	.....	107	434	400	.....
77 Eganville	.....	375	.....	.....	17	1,310	3,082	.....
78 Elmira	2,314	.....	85	5	69	963	1,882	.....
79 Elora	.....	.....	.....	7	537	1,494	4,122	.....
80 Embro	.....	.....	13	.....	51	439	1,225	.....
81 ENGLEHART	.....	3,225	303	10	304	.....	5,925	.....
82 Erin	.....	.....	13	2	30	364	700	.....
83 ESSEX	.....	427	74	21	75	763	4,225	.....
84 Exeter	5,660	.....	10	106	30	1,779	2,722	.....
85 Fenelon Falls	.....	54	489	8	482	868	3,000	.....
86 Fergus	.....	.....	13	3	483	1,246	5,000	.....
87 Finch	.....	.....	5	2	4	128	598	.....
88 FOREST	.....	110	35	171	385	756	4,500	.....
89 Fort Erie	.....	.....	.....	55	152	349	12,802	.....
90 FORT FRANCES	35,401	.....	53	218	1,278	.....	4,217	1,792
91 GALT	17,874	967	2,235	1,987	3,561	7,563	41,247	25,916
92 GANANOQUE	2,082	.....	.....	481	1,789	1,523	11,000	8,359
93 Garden Island	.....	.....	.....	.....	.....	533	689	.....
94 Georgetown	636	90	88	21	9	1,298	4,602	.....
95 Glencoe	8,018	.....	53	20	10	830	1,794	528
96 GODERICH	8,442	707	165	780	855	2,418	16,750	5,625

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*							Assets Dec. 31, '09			
Other investments and deposits.	School debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	No.
$	$	$	$	$	$	$	$	$	$	
.....	.....	89	500	275	.....	69	4,138	8	652	49
.....	.....	901	1,500	953	.....	317	8,278	324	362	50
.....	.....	.....	.....	160	.....	39	2,156	770	7	51
.....	412	962	3,000	3,704	.....	1,042	40,980	.....	1,116	52
.....	298	410	3,145	741	.....	106	9,593	644	175	53
.....	.....	336	.....	248	.....	33	3,634	1,794	252	54
.....	.....	336	.....	421	.....	133	4,625	355	1,145	55
.....	55	2,404	1,500	6,488	510	1,354	65,068	23,608	898	56
57,268	.....	.....	30,000	1,459	1,700	239	189,625	2,165	25,766	57
.....	199	287	.....	429	.....	59	4,545	.....	902	58
.....	.....	7,284	18,391	11,105	.....	901	80,706	412	15,025	59
.....	.....	.....	2,000	35	.....	160	8,522	1,216	.....	60
500	.....	38	1,000	43	.....	842	8,603	63	305	61
.....	476	17,464	52,396	20,265	.....	*20,541	228,390	6,567	3,151	62
.....	.....	.....	1,000	12	.....	783	11,665	8,104	1,850	63
.....	485	16,188	25,400	12,811	.....	784	105,546	.....	55,074	64
.....	.....	.....	.....	22	.....	184	2,340	272	865	65
.....	.....	442	700	871	.....	101	6,045	1,057	2,425	66
.....	.....	.....	.....	5	.....	344	5,651	1,549	325	67
.....	917	4,668	2,976	5,637	.....	†20,600	60,510	167	9,914	68
151	76	1,284	5,977	956	.....	281	13,884	.....	46	69
.....	.....	3,428	6,650	1,706	.....	76	27,478	845	8,218	70
.....	210	1,114	.....	1,243	4	331	9,998	2,660	479	71
29	484	3,798	28,000	5,663	.....	1,229	97,657	769	26,934	72
222	261	1,232	11,000	1,935	.....	706	38,275	2,156	107	73
615	.....	14,686	2,054	2,793	.....	1,833	31,194	3,306	3,200	74
.....	258	1,829	.....	688	.....	119	7,325	729	723	75
.....	.....	.....	1,300	35	.....	208	4,829	1,462	940	76
.....	.....	618	.....	596	.....	6	9,073	1,269	3,182	77
8,372	109	2,814	.....	2,610	.....	503	24,220	.....	.....	78
.....	.....	1,396	1,500	369	.....	1,881	13,857	2,717	531	79
.....	.....	904	625	454	.....	92	6,245	2,325	15	80
.....	.....	.....	2,452	65	.....	271	15,532	81	1,868	81
.....	.....	.....	.....	1	.....	158	2,632	63	236	82
.....	175	2,552	898	2,623	.....	435	19,243	.....	13,059	83
9,500	.....	2,072	4,450	819	.....	1,181	41,837	.....	166	84
2,505	.....	2,485	.....	3,312	.....	188	18,419	2,884	1,329	85
15	238	305	5,090	71	.....	652	17,300	820	459	86
.....	.....	355	.....	490	.....	16	2,126	234	22	87
3	656	2,915	9,500	632	.....	956	24,013	335	958	88
.....	302	660	1,890	778	.....	104	24,631	.....	903	89
.....	.....	1,127	2,500	5,622	.....	1,338	59,251	2,419	9,674	90
4,541	.....	1,732	32,668	30,912	.....	6,654	231,066	.....	15,446	91
.....	.....	1,442	52,000	10,039	.....	359	104,561	1,637	2,421	92
.....	.....	.....	.....	.....	.....	250	1,961	589	.....	93
.....	1,300	2,935	8,340	2,940	.....	765	31,007	208	2,358	94
.....	.....	1,550	16,913	1,536	.....	366	33,667	109	2,502	95
26,722	.....	18,328	99,223	19,360	.....	2,178	236,928	2,035	4,808	96

* Including $17,724 loan to Imperial Steel Co.
† Including $20,000 bonus to Furniture Co.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Villages and Towns.	Assets on December 31, 1909.—*Continued.*						Liabilities Dec. 31	
	Sinking Fund investments and deposits.	All other investments and deposits.	Waterworks and electric light plant.	Other property.	Miscellaneous.	Total assets.	County levy.	Local school rates.
	$	$	$	$	$	$	$	$
49 Casselman	959	444	.....	500	.....	2,563	.....	.....
50 Cayuga	.....	4,000	.....	10,095	19	14,800	.....	.....
51 Chatsworth	629	.....	.....	1,162	213	2,781	.....	.....
52 CHESLEY	8,356	.....	38,000	10,350	36,575	94,397	.....	.....
53 Chesterville	.....	.....	130	1,689	.....	2,638	.....	.....
54 Chippawa	.....	500	1,100	4,700	8,312	16,658	.....	.....
55 Cliffcrd	.....	.....	3,025	3,000	647	8,172	.....	.....
56 CLINTON	35,212	33,318	34,908	26,300	312	154,556	.....	.....
57 COBALT	7,496	57,268	16,978	20,074	17,700	147,447	.....	7,931
58 Cobden	.....	.....	.....	1,910	5,548	8,360	332	.....
59 COBOURG	6,887	.....	.....	158,000	7,030	187,354	.....	286
60 Colborne	.....	.....	400	3,790	500	5,906	.....	.....
61 Coldwater	.....	.....	.....	2,650	1,096	4,114	.....	.....
62 COLLINGWOOD	9,826	30,200	106,338	192,000	1,108	349,190	.....	.....
63 COPPER CLIFF	.....	.....	.....	6,705	.....	16,659	.....	6,151
64 CORNWALL	.....	25,884	139,747	48,050	5,588	274,343	.....	2,046
65 Courtwright	.....	.....	.....	.....	392	1,529	.....	840
66 Creemore	.....	.....	22,000	190	.....	25,672	.....	1,032
67 Delhi	.....	.....	.....	300	.....	2,174	.....	1,093
68 DESERONTO	.....	.....	68,534	8,550	1,358	88,523	5,752	2,578
69 Drayton	.....	151	.....	17,400	150	17,747	528	.....
70 DRESDEN	.....	1,000	13,000	24,840	897	48,800	.....	.....
71 Dundalk	.....	.....	5,000	10,725	12,958	31,822	.....	1,700
72 DUNDAS	34,450	9,029	58,981	75,142	8,495	213,800	.....	.....
73 DUNNVILLE	5,434	822	31,000	11,582	19,002	70,103	.....	.....
74 DURHAM	.....	9,682	.....	8,600	24	24,812	.....	.....
75 Dutton	.....	.....	500	8,600	43	10,595	.....	.....
76 Eastview	.....	.....	.....	244	44	2,690	.....	1,375
77 Eganville	.....	.....	.....	19,782	175	24,408	.....	1,973
78 Elmira	.....	21,622	27,344	1,627	.....	50,593	.....	.....
79 Elora	.....	4,500	.....	20,500	55	28,303	.....	2,651
80 Embro	.....	5,000	.....	8,000	.....	15,340	.....	1,364
81 ENGLEHART	.....	.....	.....	5,185	.....	7,134	.....	1,100
82 Erin	.....	.....	.....	1,400	.....	1,699	.....	.....
83 ESSEX	.....	.....	33,000	5,700	11,583	63,342	801	1,500
84 Exeter	.....	9,500	2,800	17,300	250	30,016	.....	4,393
85 Fenelon Falls	.....	2,623	72,200	8,875	448	88,359	.....	2,510
86 FERGUS	.....	13,939	.....	17,800	92	33,110	.....	229
87 Finch	.....	.....	.....	.....	8	264	.....	.....
88 FOREST	.....	206	.....	14,601	994	17,094	.....	.....
89 Fort Erie	.....	.....	3,636	10,058	.....	14,597	.....	.....
90 FORT FRANCES	6,304	.....	69,570	32,980	38,125	159,072	.....	2,890
91 GALT	173,083	4,862	182,551	233,400	23,021	632,363	.....	.....
92 GANANOQUE	55,356	.....	155,000	28,625	29,000	272,039	.....	.....
93 Garden Island	.....	.....	.....	.....	.....	589	.....	.....
94 Georgetown	.....	11,500	42,300	11,600	.....	67,966	.....	.....
95 Gleneoe	528	7,300	12,500	9,200	1,425	33,564	906	.....
96 GODERICH	16,001	134,482	127,492	20,550	94,966	450,334	2,418	.....

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on Dec. 31, 1909.—*Continued.*

Railway debentures.	School debentures.	Waterworks debentures.	Electric light debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	
.....	.....	.....	.....	3,011	875	.....	.....	3,886	49
.....	.....	.....	.....	17,722	1,100	.....	.....	18,822	50
.....	.....	.....	.....	4,000	.....	.....	26	4,026	51
.....	10,981	37,428	.....	32,525	4,972	.....	63	85,969	52
.....	5,894	.....	.....	8,892	.....	.....	.....	14,786	53
.....	.....	.....	.....	4,603	500	.....	.....	5,103	54
.....	.....	.....	.....	7,661	1,900	.....	25	9,586	55
.....	1,295	53,000	.....	96,248	.....	.....	6,947	157,490	56
.....	15,000	75,000	.....	25,000	14,150	7,496	17,634	162,211	57
.....	4,819	.....	.....	5,202	369	.....	189	10,911	58
.....	50,280	.....	.....	194,276	19,400	502	1,041	265,785	59
.....	.....	.....	.....	.....	.....	.....	45	45	60
.....	.....	.....	.....	748	300	.....	.....	1,048	61
.....	6,591	84,306	.....	408,730	17,765	.....	8,390	525,782	62
.....	.....	.....	.....	.....	.....	.....	2,373	8,524	63
.....	12,588	105,720	.....	168,977	20,583	.....	1	309,915	64
.....	.....	.....	.....	.....	.....	.....	307	1,147	65
.....	.....	20,034	.....	.....	.....	.....	29	21,095	66
.....	.....	.....	.....	.....	.....	.....	350	1,443	67
18,999	.....	43,806	19,176	19,325	7,643	.....	1,835	119,114	68
.....	3,512	.....	.....	9,835	2,606	.....	818	17,299	69
.....	.....	.....	8,357	25,090	.....	.....	.....	33,447	70
.....	6,789	.....	2,984	17,943	.....	.....	.....	29,416	71
.....	19,516	46,119	.....	66,164	.....	.....	2,638	134,437	72
.....	11,293	9,729	.....	17,022	2,100	.....	200	40,344	73
.....	.....	.....	.....	51,511	.....	.....	362	51,873	74
1,720	1,497	.....	.....	10,715	.....	.....	35	13,967	75
.....	.....	.....	.....	.....	.....	.....	125	1,500	76
.....	.....	.....	.....	14,289	.....	.....	.....	16,262	77
2,466	2,591	24,229	.....	29,322	2,994	.....	.....	61,602	78
.....	.....	.....	.....	6,402	.....	.....	.....	9,053	79
4,476	.....	.....	.....	3,112	1,125	.....	233	10,310	80
.....	5,000	.....	.....	.....	2,903	.....	3	9,006	81
.....	.....	.....	.....	.....	100	.....	1	101	82
.....	4,348	17,872	.....	27,477	1,402	.....	.....	53,400	83
2,845	.....	.....	.....	12,175	11,183	.....	.....	30,596	84
.....	.....	66,450	.....	12,191	.....	.....	695	81,846	85
2,860	1,471	.....	.....	.....	.....	.....	780	5,340	86
.....	.....	.....	.....	8,556	.....	.....	257	8,813	87
.....	671	.....	.....	7,976	3,100	.....	206	11,953	88
.....	9,698	.....	.....	2,184	2,460	.....	1,091	15,433	89
.....	.....	57,502	.....	69,663	4,000	.....	4,072	138,127	90
.....	113,200	182,039	.....	510,916	37,281	.....	674	844,160	91
14,700	21,536	176,000	.....	38,525	2,000	296	.....	253,057	92
.....	.....	.....	.....	.....	.....	.....	.....	.....	93
.....	.....	33,300	.....	30,014	.....	.....	.....	63,314	94
.....	.....	.....	11,000	17,727	.....	528	5,491	35,652	95
17,585	5,000	90,233	17,517	288,463	34,244	.....	8,160	463,620	96

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Village and Town Municipalities and Counties in which located.	Receipts, 1909. Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Water, electric light and gas rates.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$	$
97 GORE BAY, Manitoulin	164	5,272	274	20	.....	.....	.....	3,022
98 Grand Valley, Dufferin	923	4,747	450	71	.....	.....	.....	1,000
99 GRAVENHURST, Muskoka	1,470	16,065	654	322	13,981	445	*13,758	14,000
100 Grimsby, Lincoln	902	13,632	57	131	3,000	45	1,690	8,200
101 Hagersville, Haldimand	326	5,990	375	4	.....	.....	90	.....
102 HAILEYBURY, Nipissing	1,345	38,451	1,788	1,316	2,758	.....	231	32,749
103 HANOVER, Grey	1,362	16,142	642	122	1,510	13	.....	8,250
104 HARRISTON, Wellington	3,118	14,587	459	311	.....	39	368	8,300
105 Hastings, Northumberland	76	5,173	167	239	.....	.....	.....	2,158
106 Havelock, Peterborough	355	8,214	220	190	.....	.....	.....	5,387
107 HAWKESBURY, Prescott	.....	10,422	1,622	11	4,896	.....	.....	17,145
108 Hensall, Huron	.....	6,635	30	6	.....	15	1,904	6,843
109 Hepworth, Bruce	248	1,694	94	.....	.....	554	1,150	.....
110 HESPELER, Waterloo	.....	17,760	601	365	5,666	2,482	1,937	5,971
111 Holland Landing, York	341	1,108	108	54	.....	.....	.....	700
112 HUNTSVILLE, Muskoka	8,903	19,379	678	321	13,491	115	.....	10,000
113 INGERSOLL, Oxford	.....	50,653	1,607	1,283	.....	3,177	4,816	13,995
114 Iroquois, Dundas	1,445	9,817	.....	212	3,650	.....	2,435	.....
115 KEARNEY, Parry Sound	361	1,230	188	25	.....	.....	.....	800
116 KEEWATIN, Kenora	268	12,329	656	120	.....	.....	.....	690
117 Kemptville, Grenville	831	10,302	277	67	.....	.....	.....	5,354
118 KENORA, Kenora	34,134	70,998	3,645	2,281	80,869	6,368	2,850	40,004
119 KINCARDINE, Bruce	1,239	19,589	950	318	8,267	704	10,785	8,823
120 KINGSVILLE, Essex	10	14,357	376	1,330	1,512	.....	.....	5,000
121 Lakefield, Peterborough	135	11,069	71	200	.....	120	.....	7,000
122 Lanark, Lanark	707	5,377	200	109	.....	.....	.....	1,550
123 Lancaster, Glengarry	53	2,821	218	4	.....	.....	.....	1,200
124 LATCHFORD, Nipissing	.....	6,505	350	357	.....	.....	.....	4,500
125 LEAMINGTON, Essex	6,711	18,778	617	199	22,907	183	10,000	2,988
126 LINDSAY, Victoria	690	74,704	2,967	1,373	14,558	549	18,929	45,000
127 LISTOWEL, Perth	.....	25,357	951	30	4,216	2,954	899	1,677
128 LITTLE CURRENT, Manitoulin	341	5,339	531	639	.....	.....	.....	1,000
129 L'Orignal, Prescott	168	4,206	359	.....	.....	.....	6,079	.....
130 Lucan, Middlesex	1,209	5,273	281	82	.....	257	6,656	4,344
131 Lucknow, Bruce	1,403	7,039	378	175	.....	760	11,320	.....
132 Madoc, Hastings	.....	6,736	213	71	3,419	.....	.....	7,430
133 Markdale, Grey	.....	7,430	197	97	.....	300	.....	.....
134 Markham, York	.....	8,497	178	114	2,241	.....	250	.....
135 Marmora, Hastings	1,733	7,307	261	83	.....	.....	.....	7,300
136 MASSEY, Sudbury	421	6,809	348	77	676	5	.....	1,800
137 MATTAWA, Nipissing	855	9,782	1,028	77	.....	8	.....	1,628
138 Maxville, Glengarry	227	3,990	188	153	.....	10	.....	.....
139 MEAFORD, Grey	8,409	27,769	416	2,033	3,344	1,580	2,337	32,637
140 Merrickville, Grenville	591	6,795	224	267	.....	..	.....	4,500
141 Merritton, Lincoln	537	15,713	300	10	8,122	91	2,862	21
142 MIDLAND, Simcoe	.....	44,356	.....	1,281	22,812	.....	.....	34,760
143 Millbrook, Durham	267	6,219	165	75	.....	14	.....	3,700
144 MILTON, Halton	2,425	11,480	343	312	4,728	176	500	13,500

NOTE.—The names of the towns are printed in small capitals.

* Including $11,897, Clark Mortgage transferred to "Buildings" account.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*						Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Lighting of streets, water supply and fire protection.	Law costs.	Other expenses of municipal government.	Streets, bridges and parks.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	....	23	8,775	171	97	15	158	215	97
.....	.....	.....	....	807	7,998	144	475	11	267	348	98
.....	35,000	437	....	3,285	99,417	1,021	2,193	2	5,875	781	99
.....	10,500	82	....	205	38,444	383	2,401	269	300	5,440	100
.....	.....	.....	....	61	6,846	239	694	75	143	1,159	101
30,000	81,000	.....	....	*16,466	206,104	3,078	7,350	742	1,019	27,882	102
.....	.....	.....	....	113	28,154	560	2,191	211	369	4,800	103
.....	.....	.....	....	†3,462	30,644	762	1,464	.....	485	780	104
.....	.....	.....	92	89	7,994	293	767	10	215	1,355	105
.....	.....	.....	100	173	14,639	552	489	101	140	1,399	106
.....	13,214	640	....	972	48,922	1,062	4,766	387	1,316	4,240	107
.....	781	.....	....	141	16,355	198	371	19	107	3,961	108
.....	11,000	.....	....	280	15,020	94	.....	2	81	213	109
.....	17,731	.....	1500	968	54,981	916	2,081	.....	6,045	5,612	110
.....	.....	.....	100	21	2,432	126	.....	.....	65	366	111
.....	.....	.....	....	371	53,258	1,841	8,843	20	2,819	13,626	112
.....	.....	.....	37	2,828	78,396	2,124	6,967	28	1,320	3,140	113
.....	.....	.....	....	53	17,612	169	659	17	1,865	352	114
.....	.....	.....	....	33	2,637	88	64	15	47	227	115
8,000	.....	143	....	95	22,301	717	1,076	.....	492	3,189	116
.....	.....	.....	....	122	16,953	560	1,045	.....	137	1,364	117
.....	300,000	.....	....	295	541,444	3,057	9,754	959	‡36,337	7,835	118
.....	12,434	.....	144	1,059	64,312	807	5,496	75	1,882	2,640	119
.....	3,300	43	....	317	26,245	703	3,700	6	574	2,465	120
1,000	.....	15	5	233	19,848	374	906	160	273	1,077	121
.....	.....	.....	....	78	8,021	570	270	.....	116	843	122
.....	.....	.....	....	33	4,329	183	164	3	76	1,300	123
5,000	.....	15	....	420	17,147	635	1,333	100	460	288	124
1,500	.....	360	....	357	64,600	1,281	3,565	.....	‖16,296	2,971	125
15,000	10,000	.....	....	1,383	185,153	3,447	18,479	389	2,167	12,557	126
.....	37,500	710	309	1,244	75,847	600	5,428	199	750	1,176	127
.....	.....	.....	....	308	8,158	739	292	57	263	679	128
.....	.....	101	....	183	11,096	226	475	.....	54	1,388	129
.....	.....	.....	162	36	18,300	328	478	7	73	778	130
.....	3,500	.....	98	182	24,855	417	1,693	18	500	1,147	131
.....	.....	.....	....	110	17,979	262	794	.....	3,170	1,314	132
.....	20,000	936	....	1,024	29,990	274	779	95	336	143	133
.....	.....	.....	....	109	11,389	373	2,721	250	225	986	134
.....	.....	.....	....	526	17,210	268	331	15	208	523	135
.....	.....	.....	....	206	10,342	354	406	30	184	746	136
.....	.....	.....	....	114	13,493	457	1,444	.....	212	466	137
.....	2,530	.....	....	130	7,234	198	194	.....	138	229	138
.....	.....	.....	....	1,360	79,885	2,096	4,332	200	1,777	3,276	149
.....	.....	.....	....	558	12,935	218	836	48	418	2,508	140
.....	.....	.....	110	289	28,055	1,067	3,958	222	342	2,762	141
4,000	.....	448	....	3,595	111,252	1,269	8,230	39	8,265	14,713	142
.....	.....	.....	....	228	10,668	192	1,328	30	175	649	143
.....	10,000	.....	....	37	43,501	773	2,370	63	2,662	2,449	144

* Including $900 for horses sold and $1,483 for sewer services.
† Including $2,550 from Dominion Government for post office site.
‡ Including $30,285 for maintenance and operation of electric light, power and telephone systems.
‖ Including $15,700 for maintenance and operation of natural gas plant.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS. DISBURSEMENTS.

Disbursements, 1909.—*Continued.*

Villages and Towns.	Waterworks and electric light construction.	Buildings and other works.	Board of Health.	Support of the poor and other charities.	Administration of justice, including police services.	County Treasurer for levies.	Payment on account of schools and education.	Sinking Fund investments and deposits.
	$	$	$	$	$	$	$	$
97 GORE BAY	.....	.....	216	27	360	.....	2,683	13
98 Grand Valley	.....	.....	40	10	50	298	2,525	.....
99 GRAVENHURST	28,230	11,897	106	440	590	.....	6,836	5
100 Grimsby	1,940	.....	56	34	104	2,087	3,397	.....
101 Hagersville	.....	.....	28	59	334	440	1,829	.....
102 HAILEYBURY	48,138	528	979	20	3,624	.....	33,992	.....
103 HANOVER	1,311	32	88	30	125	675	4,301	.....
104 HARRISTON	.....	468	6	6	236	1,376	4,889	.....
105 Hastings	.....	75	10	38	182	378	1,842	.....
106 Havelock	.....	438	.....	13	315	441	4,590	87
107 HAWKESBURY	404	101	6	8	426	.....	7,357	.....
108 Hensall	.....	.....	.....	45	.....	833	1,551	.....
109 Hepworth	.....	.....	8	.....	9	168	1,000	.....
110 HESPELER	6,993	120	386	25	463	2,631	5,675	.....
111 Holland Landing	.....	70	123	8	3	140	714	.....
112 HUNTSVILLE	182	.....	53	339	832	.....	5,443	.....
113 INGERSOLL	.....	2,547	91	1,431	1,971	4,112	25,531	9,385
114 Iroquois	.....	.....	.....	10	9	901	4,706	.....
115 KEARNEY	.....	.....	11	.....	.....	.....	1,030	.....
116 KEEWATIN	.....	525	210	107	616	.....	13,589	.....
117 Kemptville	.....	1,615	58	198	22	1,079	2,508	.....
118 KENORA	13,243	9,983	760	920	6,242	.....	23,600	18,142
119 KINCARDINE	1,202	49	112	68	700	1,188	7,172	5,762
120 KINGSVILLE	.....	.....	104	175	264	763	3,198	.....
121 Lakefield	.....	.....	2	96	522	854	4,822	484
122 Lanark	.....	179	94	10	31	618	1,900	.....
123 Lancaster	.....	18	.....	37	.....	205	892	.....
124 LATCHFORD	139	.....	.....	439	547	.....	6,503	.....
125 LEAMINGTON	1,222	20	97	464	786	1,503	8,590	.....
126 LINDSAY	9,861	100	1,124	1,082	2,632	4,838	29,716	1,242
127 LISTOWEL	13,916	1,129	41	164	600	3,405	6,063	4,593
128 LITTLE CURRENT	.....	80	.....	.....	188	.....	2,463	.....
129 L'Orignal	.....	.....	36	.....	.....	.....	2,130	.....
130 Lucan	14	317	10	1	12	609	2,313	227
131 Lucknow	.....	.....	15	43	114	646	2,817	.....
132 Madoc	.....	.....	103	.....	171	1,575	2,995	.....
133 Markdale	19,924	.....	37	19	121	338	2,111	.....
134 Markham	700	.....	.....	29	12	580	2,319	.....
135 Marmora	.....	.....	47	192	86	1,186	2,400	.....
136 MASSEY	707	.....	19	.....	500	.....	3,916	.....
137 MATTAWA	.....	.....	22	10	550	.....	5,142	.....
138 Maxville	.....	.....	81	56	4	447	2,129	.....
139 MEAFORD	296	11,234	28	244	917	1,050	8,350	.....
140 Merrickville	.....	.....	15	.....	28	392	2,276	.....
141 Merritton	4,992	523	10	18	385	1,836	4,745	.....
142 MIDLAND	1,951	102	1,235	402	1,620	2,723	19,571	.....
143 Millbrook	.....	.....	48	41	147	403	1,554	98
144 MILTON	.....	341	163	47	153	925	2,770	.....

NOTE.—The names of the towns are printed in small capitals.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets Dec. 31,'09.		
Other investments and deposits.	School debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	No.
$	$	$	$	$	$	$	$	$	$	
.....	.....	.....	4,022	246	.....	4	8,227	548	205	97
.....	.....	498	1,000	521	.....	532	6,719	1,279	85	98
9,313	207	2,942	15,987	6,956	.....	5,188	98,569	848	6,156	99
541	599	2,126	13,200	3,965	.....	442	37,284	1,160	2,155	100
.....	437	363	.....	523	.....	40	6,363	483	237	101
.....	678	4,966	56,278	11,257	990	4,583	206,104	.....	11,434	102
.....	112	1,950	3,300	2,806	.....	892	23,753	4,401	1,082	103
.....	199	2,760	12,200	3,028	.....	756	29,415	1,229	1,006	104
.....	.....	398	2,000	374	.....	57	7,994	.....	380	105
.....	63	164	5,100	590	.....	.....	14,482	* 157	1,998	106
.....	.....	5,754	13,279	9,809	.....	7	48,922	.....	6,614	107
208	.....	1,955	4,683	724	.....	361	15,016	1,339	841	108
11,000	.....	1,000	.....	550	.....	437	14,562	458	.....	109
.....	804	5,436	12,592	4,401	.....	801	54,981	.....	2,921	110
.....	.....	.....	750	23	.....	11	2,399	33	307	111
.....	362	2,383	11,240	4,116	.....	335	52,434	824	4,726	112
3,124	.....	2,000	2,049	10,487	.....	2,089	78,396	.....	9,606	113
646	.....	3,644	1,000	3,063	.....	195	17,236	376	.....	114
.....	.....	.....	815	24	.....	30	2,351	286	952	115
.....	203	841	.....	736	.....	.....	22,301	.....	1,098	116
.....	.....	1,229	6,129	631	.....	378	16,953	.....	7,140	117
9,288	2,278	11,230	288,956	30,856	15,000	*52,929	541,369	75	20,744	118
814	177	8,804	8,000	4,277	.....	†13,588	62,813	1,499	2,400	119
.....	262	2,959	6,371	2,281	.....	481	24,306	1,939	1,015	120
.....	526	270	7,700	1,452	.....	154	19,672	176	203	121
.....	420	431	1,550	202	.....	261	7,495	526	.....	122
.....	.....	.....	1,200	28	.....	63	4,169	160	156	123
.....	.....	.....	5,051	320	.....	612	16,427	720	4,122	124
.....	1,547	4,770	2,988	3,991	.....	‡10,868	60,959	3,641	10,515	125
11,107	12,596	17,037	30,274	15,275	851	3,754	178,528	6,625	30,585	126
14,436	.....	4,951	1,710	8,692	.....	738	68,591	7,256	1,383	127
.....	.....	376	1,000	94	.....	178	6,409	1,749	180	128
42	.....	184	5,815	340	.....	26	10,716	380	2,526	129
.....	7,000	355	4,524	852	.....	70	17,968	332	418	130
3,400	.....	10,596	1,630	1,581	.....	216	24,833	22	2,545	131
.....	.....	1,022	5,665	839	.....	69	17,979	.....	6,399	132
.....	510	1,503	236	2,848	.....	645	29,919	71	1,644	133
.....	286	1,181	203	1,423	.....	32	11,320	69	324	134
.....	.....	464	10,300	253	.....	307	16,580	630	739	135
.....	.....	470	700	1,226	.....	341	9,599	743	1,518	136
.....	.....	1,021	2,627	1,176	.....	366	13,493	.....	6,720	137
.....	196	295	2,429	379	.....	34	6,809	425	668	138
.....	873	10,050	22,994	9,854	.....	646	78,197	1,688	4,796	139
.....	.....	191	4,500	241	.....	565	12,236	699	80	140
811	630	3,323	.....	2,254	.....	177	28,055	.....	596	141
3,000	1,189	8,463	23,554	15,182	.....	644	111,252	.....	9,079	142
.....	407	.....	4,459	271	.....	359	10,152	516	419	143
10,034	.....	3,841	13,500	2,366	.....	198	43,155	346	1,338	144

* Including $34,338 advances to Industrial Companies.
† Including $12,434 bonus to Hunter Bridge and Boiler Co.
‡ Including $10,480 bonus to Heinz Pickle Co.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Villages and Towns.	Assets on Dec. 31, 1909.—*Continued.*						Liabilities Dec. 31	
	Sinking Fund investments and deposits.	All other investments and deposits.	Waterworks and electric light plant.	Other property.	Miscellaneous.	Total assets.	County levy.	Local school rates.
	$	$	$	$	$	$	$	$
97 GORE BAY	290	*450	250	2,425	.....	5,168	.....	267
98 Grand Valley	.....	.....	.....	3,025	37	4,426	.....	.....
99 GRAVENHURST	269	9,313	115,000	43,725	4,125	179,436	.....	595
100 Grimsby	1,481	9,541	43,000	14,870	7,440	79,647	870	.....
101 Hagersville	.....	.....	70	2,400	8,000	11,190	.....	1,427
102 HAILEYBURY	.....	.....	102,641	16,323	22,430	152,828	.....	2,989
103 HANOVER	.....	.....	29,500	2,792	21,422	59,197	.....	.....
104 HARRISTON	.....	19,056	.....	25,750	411	47,452	.....	.....
105 Hastings	.....	.....	.....	12,710	.....	13,090	.....	.....
106 Havelock	262	.....	.....	8,525	84	11,026	.....	.....
107 HAWKESBURY	.....	.....	120,000	5,000	16,500	148,114	2,636	3,500
108 Hensall	.....	*2,208	.....	1,610	160	6,158	.....	.....
109 Hepworth	.....	10,000	.....	15	.....	10,473	.....	.....
110 HESPELER	.....	42,911	22,785	21,641	2,294	92,552	.....	.....
111 Holland Landing	.....	.....	.....	700	115	1,155	169	.....
112 HUNTSVILLE	.....	.....	62,281	10,397	1,608	79,836	.....	.....
113 INGERSOLL	81,274	41,426	.....	33,680	36,907	202,893	.....	.....
114 Iroquois	.....	5,756	50,000	7,000	4,191	67,323	.....	3,875
115 KEARNEY	.....	.....	45	.....	694	1,977	.....	945
116 KEEWATIN	.....	.....	.....	13,885	400	15,383	.....	.....
117 Kemptville	.....	.....	.....	12,400	.....	19,540	.....	5,000
118 KENORA	36,978	9,288	635,275	47,767	90,317	840,444	.....	.....
119 KINCARDINE	15,796	814	67,580	44,444	2,022	134,555	.....	3,501
120 KINGSVILLE	.....	.....	34,500	27,250	1,696	66,400	.....	.....
121 Lakefield	3,852	.....	.....	10,700	200	15,131	906	.....
122 Lanark	.....	.....	.....	9,700	.....	10,226	.....	.....
123 Lancaster	.....	.....	.....	750	10	1,076	.....	400
124 LATCHFORD	.....	.....	.....	4,300	.....	9,142	.....	353
125 LEAMINGTON	.....	.....	48,000	13,500	14,438	90,094	.....	5,786
126 LINDSAY	.....	8,807	114,231	59,525	97,018	316,791	.....	.....
127 LISTOWEL	25,492	33,936	61,000	12,650	3,005	144,722	807	1
128 LITTLE CURRENT	.....	.....	.....	3,700	225	5,854	.....	1,650
129 L'Orignal	.....	42	.....	.....	11	2,959	360	1,286
130 Lucan	1,700	.....	.....	2,700	.....	5,150	.....	.....
131 Lucknow	2,913	3,900	10,000	7,000	.....	26,380	.....	.....
132 Madoc	.....	.....	16,010	5,700	212	28,321	1,388	.....
133 Markdale	.....	10,000	20,277	5,325	9,260	46,577	.....	671
134 Markham	.....	3,407	15,000	3,500	11,429	33,729	701	1,524
135 Marmora	.....	.....	.....	775	83	2,227	1,031	2,000
136 MASSEY	.....	.....	19,541	1,140	1,771	24,713	.....	605
137 MATTAWA	.....	.....	.....	16,323	.....	23,043	.....	5,904
138 Maxville	.....	147	.....	175	.....	1,415	.....	.....
139 MEAFORD	.....	†45,500	30,000	45,050	7,268	134,302	.....	.....
140 Merrickville	.....	.....	.....	11,066	645	12,490	.....	.....
141 Merritton	.....	811	97,245	17,795	306	116,753	.....	.....
142 MIDLAND	.....	3,000	150,122	34,050	19,500	215,751	2,655	.....
143 Millbrook	545	.....	.....	7,000	126	8,636	.....	.....
144 MILTON	.....	18,970	39,635	9,200	612	70,101	.....	.....

NOTE.—The names of the towns are printed in small capitals.

* Omitting $1,000 written off.

† Omitting $9,317 written off Seaman Kent Co.'s mortgage—building burned—Insurance refunded.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on Dec. 31, 1909.—*Continued.*

Railway debentures.	School debentures.	Waterworks debentures.	Electric light debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	
.....	500	.....	.....	.....	.....	.....	2	769	97
.....	.....	.....	.....	11,010	.....	.....	636	11,646	98
.....	3,590	20,000	84,317	43,086	6,600	.....	1,000	159,188	99
.....	15,585	41,504	.....	32,315	.....	.....	1,406	91,680	100
.....	458	.....	.....	8,952	.....	.....	832	11,669	101
.....	34,604	63,457	.....	52,947	19,877	.....	3,999	177,873	102
.....	5,579	25,324	.....	28,679	4,950	.....	814	65,346	103
.....	10,379	.....	.....	54,721	.....	.....	763	65,863	104
.....	.....	.....	.....	4,602	1,158	.....	53	5,813	105
.....	3,877	.....	.....	4,769	2,000	262	.....	10,908	106
5,315	.....	88,182	.....	107,558	20,931	.....	3,826	231,948	107
.....	.....	.....	.....	9,760	4,945	.....	.....	14,705	108
.....	.....	.....	.....	10,000	.....	.....	2,128	12,128	109
.....	9,084	11,637	13,612	49,851	5,971	.....	857	91,012	110
.....	.....	.....	.....	.....	100	.....	27	296	111
.....	15,927	17,640	21,118	23,450	.....	.....	.....	78,135	112
20,000	21,144	.....	.....	195,942	13,995	.....	3,196	254,277	113
.....	.....	35,426	4,200	28,347	1,050	.....	129	73,027	114
.....	.....	.....	.....	.....	621	.....	.....	1,566	115
.....	11,516	.....	.....	8,451	690	.....	1,500	22,157	116
.....	.....	.....	.....	8,520	5,354	.....	314	19,188	117
.....	18,131	157,023	56,473	441,699	40,005	16,625	27,026	756,982	118
.....	18,679	27,923	8,825	38,359	.....	823	100	98,210	119
.....	2,195	20,794	8,407	5,866	4,500	.....	966	42,728	120
.....	11,483	.....	.....	17,603	1,000	.....	75	31,067	121
.....	.....	.....	.....	2,652	.....	.....	.....	2,652	122
.....	.....	.....	.....	.....	.....	.....	25	425	123
.....	5,000	4,000	.....	.....	.....	.....	640	9,993	124
.....	12,750	17,866	11,280	34,693	.....	.....	1,806	84,181	125
20,284	19,518	92,911	.....	214,889	56,000	.....	9,828	413,431	126
.....	.....	33,901	15,894	147,375	.....	1,677	15,129	214,783	127
.....	.....	.....	.....	788	.....	.....	3	2,441	128
.....	.....	.....	.....	5,895	.....	.....	159	7,700	129
.....	2,000	.....	.....	5,820	.....	.....	.....	7,820	130
.....	.....	.....	.....	22,687	.....	.....	175	22,862	131
.....	.....	.....	7,363	8,356	7,430	.....	.....	24,537	132
.....	653	19,330	.....	21,015	.....	.....	350	42,019	133
.....	6,517	4,864	2,814	10,459	.....	.....	554	27,433	134
.....	.....	.....	.....	4,423	.....	.....	236	7,690	135
.....	.....	19,258	.....	.....	1,115	.....	603	21,581	136
.....	.....	.....	.....	20,725	1	.....	425	27,055	137
.....	4,091	.....	.....	5,482	.....	.....	131	9,704	138
28,219	917	22,372	.....	125,502	9,643	.....	221	186,874	139
.....	.....	.....	.....	6,109	.....	.....	753	6,862	140
.....	2,821	28,607	9,698	.....	21	.....	.....	41,147	141
.....	46,786	73,834	24,917	168,990	17,881	.....	441	335,504	142
.....	430	.....	.....	2,270	500	.....	46	3,246	143
.....	.....	10,716	6,303	48,296	.....	.....	.....	65,315	144

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Village and Town Municipalities and Counties in which located.	Receipts, 1909.							
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Water, electric light and gas rates.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$	$
145 Milverton, Perth	1,127	5,573	276	26				3,440
146 Mitchell, Perth	418	20,089	707	264	3,703	135	2,681	30,696
147 Morrisburg, Dundas	13,876	21,570	166	256	9,186	348	1,223	9,838
148 Mount Forest, Wellington	579	19,493	855	368	9,627	1,496	3,199	10,619
149 Napanee, Lennox and Add.	872	33,545	1,759	720	7,406	20	207	2,248
150 Neustadt, Grey		2,511	200					1,080
151 Newboro', Leeds	354	2,124	256	38				
152 Newburgh, Lennox and Add.	543	3,289	83	75		15		500
153 Newbury, Middlesex	292	1,511	81	23		1		575
154 Newcastle, Durham	277	4,475		68		11		
155 New Hamburg, Waterloo		10,312	633	51				13,588
156 New Liskeard, Nipissing	1,808	28,098	709	527	3,937	139	758	17,478
157 Newmarket, York	350	23,045	801	218	9,008		40	14,169
158 Niagara, Lincoln	75	13,760	631	991	4,565	8		8,500
159 North Bay, Nipissing		59,700	4,877	1,669	16,998	70		25,028
160 North Toronto, York		44,313	110	134	5,909	210		36,031
161 Norwich, Oxford	5,584	12,459	9	93		274	500	4,000
162 Norwood, Peterborough	20	6,368		154		12		2,182
163 Oakville, Halton		27,705	359	327	7,168	676	14,897	8,470
164 Oil Springs, Lambton	161	7,454	340	60		25		5,400
165 Omemee, Victoria	132	3,637	20	8				2,000
166 Orangeville, Dufferin	1,950	26,210	1,404	153	3,152	940	1,314	12,000
167 Orillia, Simcoe	1,450	60,663	772	1,314	36,962	1,173		19,411
168 Oshawa, Ontario		58,787	2,265	1,313	11,938	1,383	10,695	25,000
169 Owen Sound, Grey	74,732	125,485	1,199	5,008	70,361	14,251	72,316	55,936
170 Paisley, Bruce	1,636	8,499	329	509	8	41	390	2,791
171 Palmerston, Wellington		18,272	465	122	6,932	1,262	5,226	21,350
172 Paris, Brant	14,467	36,878	1,425	388	12,618	140		17,500
173 Parkhill, Middlesex	1,317	10,567	432	257		6	7,831	
174 Parry Sound, Parry Sound	79	30,030	1,576	696	14,409	456		8,948
175 Pembroke, Renfrew	3,818	51,685	3,803	1,137	9,848	395		26,594
176 Penetanguishene, Simcoe	21	28,874	519	170	3,611	174	500	28,141
177 Perth, Lanark	4,953	35,615	1,233	842	2,884	29	1,000	
178 Petrolia, Lambton		37,367	1,183	709	15,613			7,542
179 Picton, Prince Edward		36,796	1,397	817	16,713	115	958	2,508
180 Point Edward, Lambton	183	5,802	234	41				1,000
181 Port Carling, Muskoka	1,014	2,167	3	90		17		125
182 Port Colborne, Welland		9,804	547	65	2,042	39	6,518	
183 Port Dalhousie, Lincoln	3,077	8,228	300	1,124		11		1,500
184 Port Dover, Norfolk	2,033	7,988	199	493		27		4,000
185 Port Elgin, Bruce	1,883	13,484	330	216	377	880	733	4,250
186 Port Hope, Durham		49,717	1,896	651	5,885	2,047	647	49,000
187 Port Perry, Ontario	687	13,199	352	527	4,022		430	3,200
188 Port Rowan, Norfolk		4,574	202			211		4,976
189 Portsmouth, Frontenac	303	2,646	125	7				200
190 Port Stanley, Elgin	40	5,675	429	30		8		3,991
191 Powassan, Parry Sound	582	2,946	214	148		3		
192 Prescott, Grenville		31,217	1,330	1,550	17,804	14	22,569	6,500
193 Preston, Waterloo		27,982	1,333	191	14,656	961	4,964	37,591

NOTE.—The names of the towns are printed in small capitals.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*						Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Lighting of streets, water supply and fire protection.	Law costs.	Other expenses of municipal government.	Streets, bridges and parks.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	.....	..	....	762	11,204	363	375	9	190	2,788	145
.....	.....	.....	94	154	58,941	935	3,962	66	734	3,275	146
.....	1,750	.....	....	143	58,350	576	7,169	180	348	3,753	147
.....	604	.....	....	152	46,932	827	3,911	171	5,331	1,623	148
.....	.....	.....	1230	83	48,090	2,671	3,409	500	5,841	6,884	149
.....	.....	.....	....	120	3,911	112	218	.....	21	1,481	150
.....	.....	.....	....	42	2,814	115	.....	40	103	329	151
.....	.....	.....	251	36	4,792	131	100	.....	100	1,105	152
.....	835	.....	57	21	3,396	118	173	50	75	407	153
.....	.....	.....	....	32	4,863	217	244	.....	197	992	154
.....	.....	.....	....	357	24,941	363	1,252	2	334	1,342	155
.....	15,000	.....	....	1,095	69,549	1,844	7,080	.....	819	1,544	156
.....	.....	.....	....	412	48,043	1,776	6,141	77	2,371	15,812	157
.....	.....	.....	....	109	28,639	961	5,074	91	270	2,040	158
.....	19,511	732	....	2,089	130,674	3,299	14,260	601	1,166	21,581	159
18,000	11,474	1,054	....	347	117,582	2,568	8,237	1,506	2,440	32,030	160
.....	6,350	164	....	124	29,557	691	1,994	.....	114	2,199	161
.....	.....	.....	....	203	8,939	185	692	104	137	230	162
.....	20,000	.....	....	240	79,842	655	2,577	187	1,787	7,472	163
.....	.....	.....	....	596	14,036	432	.....	89	170	532	164
.....	.....	.....	....	59	5,856	201	304	.....	107	715	165
.....	7,938	26	....	192	55,279	1,097	4,464	57	909	1,251	166
.....	40,000	1,276	....	1,632	164,653	2,777	6,242	325	12,921	19,547	167
26,000	13,890	524	....	*4,120	155,915	2,952	6,764	169	6,465	22,095	168
.....	186,667	4,332	....	†5,986	616,273	6,489	17,730	2,415	‡39,745	23,129	169
.....	1,440	.....	82	271	15,996	672	1,223	59	343	2,073	170
.....	11,000	204	....	157	64,990	806	2,079	816	8,623	2,037	171
.....	5,000	.....	....	452	88,868	2,120	6,216	133	4,342	2,901	172
.....	.....	.....	....	120	20,530	347	1,353	.....	531	803	173
.....	.....	.....	....	1,146	57,340	2,158	6,137	300	6,310	2,790	174
.....	54,496	785	40	425	152,826	2,484	4,378	500	12,671	21,652	175
.....	.....	.....	....	183	62,193	987	5,131	50	914	5,883	176
.....	33,053	2,039	....	320	81,968	1,331	3,304	.....	4,109	3,380	177
.....	22,387	.....	....	1,098	85,899	3,227	12,451	1,140	2,525	24,204	178
.....	.....	.....	300	263	59,867	1,254	1,983	288	‖13,870	5,272	179
.....	.....	.....	....	194	7,454	340	553	25	170	128	180
.....	.....	.....	....	109	3,525	188	.....	4	84	613	181
7,000	2,600	.....	....	46	28,661	513	2,095	282	353	2,115	182
.....	.....	.....	....	27	14,267	325	1,811	.....	120	1,220	183
.....	.....	.....	....	126	14,866	305	538	744	473	3,297	184
.....	5,974	.....	122	1,366	29,615	326	1,478	51	297	112	185
.....	69,632	2,215	500	510	182,700	4,075	3,099	313	5,308	10,651	186
.....	.....	.....	....	322	22,739	805	1,611	.....	3,516	3,076	187
.....	.....	.....	380	54	10,397	192	424	.....	95	1,628	188
.....	.....	.....	115	146	3,542	251	24	2	140	265	189
.....	.....	61	....	396	10,630	412	703	28	264	1,889	190
5,000	800	300	....	80	10,073	167	306	24	298	511	191
.....	.....	.....	....	167	81,241	2,703	3,157	250	¶13,133	6,756	192
.....	41,561	45	....	3,355	132,645	1,300	4,076	1,496	§13,992	16,732	193

* Including $4,010, proceeds sale of harness factory.
† Including $3,150 from other municipalities.
‡ Including $34,610, maintenance gas, electric light and power plants.
‖ Including $12,343, maintenance public utilities—electric light, etc.
¶ Including $11,777, maintenance public utilities—electric light, etc.
§ Including $12,721 operating expenses, public utilities.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS.

Villages and Towns.	Disbursements, 1909.—*Continued.*							
	Waterworks and electric light construction.	Buildings and other works.	Board of Health.	Support of the poor and other charities.	Administration of justice, including police services.	County Treasurer for levies.	Payment on account of schools and education.	Sinking Fund investments and deposits.
	$	$	$	$	$	$	$	$
145 Milverton	.....	800	.....	25	37	166	1,411	.....
146 MITCHELL	201	426	.....	280	365	796	5,319	1,570
147 Morrisburg	11,110	1,537	.....	389	621	875	8,839	.....
148 MOUNT FOREST	.....	.....	208	14	512	1,979	5,302	1,839
149 NAPANEE	3,713	365	100	382	75	6,400	9,840	.....
150 Neustadt	.....	.....	.....	.....	.....	173	1,065	.....
151 Newboro'	.....	.....	4	20	5	131	1,255	.....
152 Newburgh	.....	.....	.....	12	.....	425	1,930	.....
153 Newbury	.....	.....	.....	1	18	288	561	.....
154 Newcastle	.....	.....	26	12	78	393	1,800	.....
155 New Hamburg	.....	.....	86	.....	88	601	3,000	.....
156 NEW LISKEARD	14,363	1,178	311	649	1,784	.....	7,000	.....
157 NEWMARKET	4,140	.....	135	97	649	1,692	5,365	.....
158 NIAGARA	1,393	137	25	8	423	.....	2,419	.....
159 NORTH BAY	23,773	2,440	54	717	2,518	.....	19,896	.....
160 NORTH TORONTO	380	.....	310	544	646	927	29,081	1,214
161 Norwich	.....	137	67	129	364	739	1,832	703
162 Norwood	.....	.....	15	154	326	577	2,905	.....
163 OAKVILLE	35,180	.....	108	479	491	1,703	7,570	923
164 Oil Springs	.....	.....	7	171	12	565	2,017	.....
165 Omemee	.....	.....	22	106	56	393	945	.....
166 ORANGEVILLE	904	.....	48	109	867	1,190	7,954	2,414
167 ORILLIA	31,092	793	168	1,163	2,888	4,376	34,717	402
168 OSHAWA	3,908	5,941	337	1,328	2,989	2,839	39,236	.....
169 OWEN SOUND	97,058	.....	1,236	1,959	5,789	5,490	30,133	58,033
170 Paisley	.....	102	273	22	337	655	2,656	.....
171 PALMERSTON	9,408	240	15	45	499	.....	4,217	1,022
172 PARIS	4,234	1,425	146	614	1,152	2,260	22,703	2,906
173 PARKHILL	.....	116	188	25	241	.....	3,745	1,110
174 PARRY SOUND	5,793	112	656	494	1,073	.....	11,088	.....
175 PEMBROKE	4,391	554	623	47	2,129	2,916	15,479	1,028
176 PENETANGUISHENE	1,296	.....	.....	62	832	1,650	12,638	939
177 PERTH	5,672	250	112	96	830	3,344	10,701	.....
178 PETROLIA	.....	.....	222	512	638	1,142	10,500	.....
179 PICTON	600	.....	352	417	1,390	2,235	15,906	.....
180 Point Edward	.....	4	12	192	477	368	1,741	.....
181 Port Carling	.....	182	134	5	76	.....	595	.....
182 Port Colborne	.....	.....	29	67	654	617	10,000	.....
183 Port Dalhousie	.....	.....	154	10	567	1,383	2,222	160
184 Port Dover	.....	.....	15	80	17	630	2,900	.....
185 Port Elgin	.....	1,218	154	10	540	803	3,300	.....
186 PORT HOPE	.....	.....	1,400	232	719	2,715	11,528	827
187 Port Perry	.....	.....	.....	363	.....	1,955	4,365	.....
188 Port Rowan	.....	50	5	.....	.....	.....	1,660	.....
189 Portsmouth	.....	.....	108	40	107	943	1,158	.....
190 Port Stanley	300	20	48	76	181	.....	2,073	.....
191 POWASSAN	.....	671	41	85	42	.....	6,584	.....
192 PRESCOTT	1,512	65	236	243	345	.....	9,162	.....
193 PRESTON	16,100	.....	76	219	564	1,258	7,871	.....

NOTE.—The names of the towns are printed in small capitals.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets Dec. 31 '09		
Other investments and deposits.	School debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	No.
$	$	$	$	$	$	$	$	$	$	
.....	.....	512	3,440	284	.....	184	10,584	620	.....	145
.....	.....	3,559	33,139	3,681	.....	494	58,802	139	620	146
.....	.....	3,846	9,838	5,871	.....	812	55,764	2,586	12	147
2,027	187	4,888	10,500	6,935	.....	678	46,932	.....	473	148
.....	1,615	2,318	.....	3,346	.....	631	48,090	.....	3,408	149
.....	.....	.....	776	14	.....	51	3,911	.....	6	150
.....	.....	127	.....	194	.....	37	2,360	454	3	151
.....	.....	.....	.....	5	.....	42	3,850	942	830	152
.....	.....	502	592	160	.....	22	2,967	429	839	153
.....	.....	.....	.....	.....	.....	44	4,003	860	1,434	154
.....	196	1,551	13,570	1,127	.....	1,429	24,941	.....	.....	155
601	367	2,949	18,311	9,084	750	789	69,423	126	10,751	156
.....	554	3,284	.....	3,135	.....	758	45,986	2,057	9,558	157
.....	.....	4,204	7,689	3,448	.....	205	28,387	252	1,468	158
.....	1,096	5,350	21,780	10,831	.....	1,312	130,674	.....	31,138	159
.....	369	5,010	21,711	10,508	.....	101	117,582	.....	13,664	160
500	565	1,391	9,978	1,582	.....	1,440	24,425	5,132	1,390	161
12	207	348	2,182	640	.....	150	8,864	75	58	162
5,038	497	3,524	3,333	7,068	.....	408	79,000	842	.....	163
.....	214	1,477	6,200	1,309	.....	57	13,252	784	4,600	164
.....	107	113	2,000	364	.....	111	5,544	312	.....	165
.....	216	4,897	19,500	5,887	.....	1,608	53,372	1,907	1,909	166
.....	841	16,517	6,400	20,354	.....	1,872	163,395	1,258	8,522	167
.....	368	9,893	30,000	14,935	.....	*5,692	155,911	4	8,685	168
.....	2,136	73,144	124,861	42,345	.....	1,578	533,270	83,003	79,807	169
1,440	.....	982	2,791	788	.....	249	14,665	1,331	794	170
957	109	5,315	19,242	8,815	.....	745	64,990	.....	1,597	171
.....	570	6,514	17,500	6,350	.....	1,430	83,516	5,352	256	172
.....	8,000	500	.....	1,319	.....	162	18,440	2,090	1,092	173
.....	975	6,599	3,764	7,883	.....	1,166	57,298	42	4,343	174
30,163	1,611	8,911	32,000	10,251	.....	1,038	152,826	.....	50,998	175
.....	876	2,226	21,794	5,889	.....	899	62,066	127	6,076	176
15,366	511	6,416	12,132	10,205	.....	748	78,507	3,461	1,190	177
.....	642	12,534	6,709	8,970	.....	483	85,899	.....	11,979	178
2,659	906	5,227	2,714	3,786	.....	1,008	59,867	.....	1,122	179
.....	.....	1,478	900	464	.....	172	7,024	430	1,142	180
.....	124	73	125	215	.....	153	2,571	954	66	181
.....	213	7,621	579	1,333	.....	520	26,991	1,670	6	182
.....	.....	1,158	1,500	597	.....	159	11,386	2,881	616	183
.....	.....	304	4,000	394	.....	70	13,767	1,099	335	184
118	530	3,399	8,004	4,446	.....	253	25,039	4,576	1,903	185
2,216	284	63,097	62,939	10,408	.....	1,446	181,257	1,443	13,127	186
44	.....	2,444	1,200	2,282	.....	115	21,776	963	2,732	187
210	.....	295	4,841	363	.....	83	9,846	551	365	188
.....	.....	.....	200	7	.....	5	3,250	292	1,141	189
.....	302	.....	3,499	601	.....	55	10,451	179	2,037	190
.....	.....	97	.....	112	.....	133	9,071	1,002	346	191
5,555	855	5,000	21,454	8,202	.....	1,275	79,903	1,338	16,892	192
.....	1,360	8,452	42,624	12,817	111	3,597	132,645	.....	9,212	193

* Including $4,290, difference of sale of harness factory and amount of m't'ge on it.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Villages and Towns.	Assets on Dec. 31, 1909.—*Continued.*						Liabilities Dec. 3	
	Sinking Fund investments and deposits.	All other investments and deposits.	Waterworks and electric light plant.	Other property.	Miscellaneous.	Total assets.	County levy.	Local school rates.
	$	$	$	$	$	$	$	$
145 Milverton	.....	.....	200	10,000	.....	10,820	.....	.....
146 MITCHELL	7,466	8,889	29,000	25,150	632	71,896	1,159	.....
147 Morrisburg	.....	.....	125,100	3,025	19,563	150,286	.....	1,000
148 MOUNT FOREST	22,424	25,677	48,000	9,000	20,822	126,396	.....	.....
149 NAPANEE	.....	.....	46,000	31,300	1,700	82,408	.....	.....
150 Neustadt	.....	.....	.....	500	.....	506	.....	.....
151 Newboro'	.....	.....	.....	1,750	180	2,387	.....	.....
152 Newburgh	.....	.....	.....	527	94	2,393	.....	1,019
153 Newbury	.....	.....	.....	2,700	390	4,358	256	.....
154 Newcastle	.....	.....	.....	2,600	360	5,254	.....	1,000
155 New Hamburg	.....	2,300	.....	15,801	55	18,156	.....	.....
156 NEW LISKEARD	.....	601	75,583	15,613	109	102,783	.....	.....
157 NEWMARKET	.....	.....	51,697	14,500	4,778	82,590	.....	.....
158 NIAGARA	.....	.....	60,000	45,000	4,181	110,901	2,219	.....
159 NORTH BAY	.....	.....	130,596	30,912	106,547	299,193	.....	.....
160 NORTH TORONTO	28,965	.....	72,403	10,383	59,611	185,026	.....	.....
161 Norwich	9,159	5,000	.....	3,600	1,097	25,378	.....	1,832
162 Norwood	.....	398	.....	10,210	126	10,867	.....	.....
163 OAKVILLE	7,576	6,176	65,000	39,460	500	119,554	.....	.....
164 Oil Springs	.....	.....	.....	5,050	.....	10,434	.....	.....
165 Omemee	.....	.....	.....	1,450	.....	1,762	.....	.....
166 ORANGEVILLE	23,705	13,300	52,069	22,300	924	116,114	1,190	2,742
167 ORILLIA	3,647	.....	411,000	89,400	2,357	516,184	4,740	2,675
168 OSHAWA	.....	32,231	137,900	40,340	63,725	282,885	.....	.....
169 OWEN SOUND	234,976	38,000	448,535	116,000	18,805	1,019,126	.....	35,771
170 Paisley	.....	11,050	.....	19,740	.....	32,915	.....	1,476
171 PALMERSTON	4,039	24,603	59,000	3,125	3,124	95,488	1,265	.....
172 PARIS	3,706	.....	136,479	48,750	27,500	222,043	.....	.....
173 PARKHILL	4,455	.....	.....	12,400	.....	20,037	1,234	1,750
174 PARRY SOUND	.....	.....	132,874	5,721	5,435	148,415	.....	.....
175 PEMBROKE	9,707	30,163	90,000	32,200	15,700	228,768	3,012	19,472
176 PENETANGUISHENE	2,742	2,500	48,927	25,999	11,784	98,146	1,663	3,705
177 PERTH	.....	37,466	13,000	42,150	12,761	110,628	.....	5,151
178 PETROLIA	.....	.....	190,430	57,700	3,999	264,108	.....	12,300
179 PICTON	.....	2,659	60,000	19,275	309	83,365	.....	.....
180 Point Edward	.....	.....	.....	2,590	8	4,170	257	1,200
181 Port Carling	.....	.....	.....	2,825	1,115	4,960	.....	398
182 Port Colborne	.....	.....	26,725	1,875	18,500	48,776	.....	.....
183 Port Dalhousie	460	6,500	.....	1,300	.....	11,757	.....	2,165
184 Port Dover	.....	.....	.....	16,300	.....	17,734	.....	1,700
185 Port Elgin	.....	11,004	39,000	16,100	.....	72,583	.....	.....
186 PORT HOPE	9,471	24,966	84,654	192,713	13,255	339,629	.....	.....
187 Port Perry	.....	44	23,000	11,500	33	38,272	.....	.....
188 Port Rowan	.....	3,210	150	40	31	4,347	357	.....
189 Portsmouth	.....	.....	.....	3,110	30	4,573	.....	632
190 Port Stanley	.....	.....	300	1,570	.....	4,086	360	688
191 POWASSAN	.....	.....	.....	4,550	.....	5,898	.....	580
192 PRESCOTT	.....	5,555	118,000	56,100	6,406	204,291	4 649	.....
193 PRESTON	.....	18,147	127,499	41,437	33,580	229,875	.....	.....

NOTE.—The names of the towns are printed in small capitals.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on Dec. 31, 1909.—*Continued.*

Railway debentures.	School debentures.	Waterworks debentures.	Electric light debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	
1,900	.....	.....	.....	3,062	.....	.....	.....	4,962	145
.....	.....	12,830	.....	56,318	1,957	.....	1,821	74,085	146
.....	.....	10,252	98,964	17,838	.....	.....	384	128,438	147
.....	389	27,292	10,028	111,429	119	.....	57	149,314	148
.....	1,025	.....	42,048	31,964	4,148	.....	.....	79,185	149
.....	.....	.....	.....	.....	480	.....	50	530	150
.....	.....	.....	.....	3,752	.....	.....	.....	3,752	151
.....	.....	.....	.....	.....	500	.....	145	1,664	152
.....	.....	.....	.....	3,481	475	.....	.....	4,212	153
.....	.....	.....	.....	.....	.....	.....	14	1,014	154
.....	3,994	.....	.....	13,884	3,213	.....	.....	21,091	155
.....	13,178	71,927	.....	14,860	12,478	.....	8,353	120,796	156
.....	9,262	16,772	13,200	16,953	21,846	.....	4,584	82,617	157
.....	.....	16,237	21,485	21,318	4,500	.....	1,225	66,984	158
.....	26,905	72,597	.....	79,337	98,057	.....	2,869	279,765	159
.....	38,947	60,187	.....	102,610	36,031	.....	60	237,835	160
.....	3,965	.....	.....	30,203	1,000	312	.....	37,312	161
.....	3,461	.....	.....	9,000	.....	.....	670	13,131	162
.....	28,290	53,766	14,692	47,437	5,270	.....	.....	149,455	163
.....	7,018	.....	.....	17,232	2,700	.....	.....	26,950	164
.....	5,008	.....	.....	1,477	.....	.....	.....	6,485	165
23,277	965	31,035	.....	73,607	.....	.....	902	133,718	166
.....	24,171	34,676	289,598	90,567	19,411	.....	5,889	471,727	167
.....	41,715	141,562	.....	151,352	16,500	.....	512	351,641	168
104,284	37,551	255,576	220,000	397,868	847	17,929	179	1,070,005	169
.....	.....	.....	.....	18,980	.....	.....	.....	20,456	170
.....	10,355	43,339	11,051	97,293	12,027	.....	4,470	179,800	171
.....	40,593	43,022	22,540	31,156	.....	.....	.....	137,311	172
.....	.....	.....	.....	17,999	.....	.....	413	21,396	173
16,226	21,670	36,618	51,604	23,963	8,948	.....	651	159,680	174
20,000	13,369	67,991	.....	142,120	14,394	.....	1,995	282,353	175
.....	39,080	28,039	.....	37,202	15,735	885	5,265	131,574	176
.....	2,002	.....	10,700	188,853	.....	.....	1,247	207,953	177
.....	18,340	115,903	.....	81,088	7,542	.....	979	236,752	178
.....	36,454	13,871	13,885	.....	2,508	.....	135	66,853	179
.....	.....	.....	.....	11,891	2,000	.....	161	15,509	180
.....	2,387	.....	.....	1,666	.....	.....	283	4,734	181
.....	8,201	14,313	.....	10,358	.....	.....	.....	32,872	182
.....	.....	.....	.....	14,220	.....	.....	100	16,485	183
.....	.....	.....	.....	6,605	.....	.....	.....	8,305	184
6,045	.....	38,149	.....	30,291	.....	.....	110	74,595	185
.....	7,051	61,199	.....	168,326	3,500	.....	200	240,276	186
.....	.....	14,107	.....	17,224	13,000	.....	351	44,682	187
.....	.....	.....	.....	6,896	1,200	.....	183	8,636	188
.....	.....	.....	.....	.....	.....	.....	172	804	189
.....	9,698	.....	.....	.....	717	.....	136	11,599	190
.....	5,000	.....	.....	2,526	.....	.....	1,059	9,165	191
.....	12,654	87,365	17,579	44,045	4,580	.....	.....	170,872	192
.....	17,711	86,068	33,726	84,305	38,391	.....	2,043	262,244	193

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Village and Town Municipalities and Counties in which located.	Receipts, 1909.							
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Water, electric light and gas rates.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$	$
194 RAINY RIVER, Rainy River..	9,963	12,347	611	196	.....	734	1,622	.....
195 RENFREW, Renfrew	.....	35,455	1,429	382	9,878	.....	103	13,725
196 Richmond, Carleton	.....	1,603	30	22	.....	56	100	855
197 Richmond Hill, York	142	4,166	.....	214	.....	.....	.....	1,200
198 RIDGETOWN, Kent	.....	19,824	570	854	.....	199	.....	11,872
199 Rockland, Russell	326	10,842	888	3	.....	.....	.....	700
200 Rodney, Elgin	560	4,104	338	15	.....	4	.....	1,500
201 ST. MARY'S, Perth	452	37,593	1,282	359	14,968	550	.....	48,263
202 SANDWICH, Essex	45	16,101	1,329	237	2,597	.....	.....	42,659
203 SARNIA, Lambton	323	123,527	2,938	1,809	23,109	2,697	1,404	273,483
204 SAULT STE. MARIE, Algoma..	8,397	117,957	3,041	2,043	.....	13,048	5,600	55,600
205 SEAFORTH, Huron	1,472	25,103	974	480	1,226	3,106	14,680	10,800
206 Shelburne, Dufferin	401	9,814	603	490	1,376	.....	.....	4,500
207 SIMCOE, Norfolk	.....	32,668	1,355	724	5,794	1,333	3,542	4,213
208 SMITH'S FALLS, Lanark	.....	50,785	2,056	2,060	12,720	1,591	15,216	64,600
209 SOUTHAMPTON, Bruce	2,747	13,214	3	232	1,821	170	.....	4,500
210 South River, Parry Sound..	658	2,297	94	61	.....	.....	.....	554
211 Springfield, Elgin	.....	3,046	103	93	.....	1	.....	700
212 STAYNER, Simcoe	3,862	8,052	442	126	896	19	.....	1,500
213 STEELTON, Algoma	4,222	28,668	77	698	.....	1,099	1,490	.....
214 Stirling, Hastings	2,220	5,824	30	268	.....	26	.....	5,152
215 Stouffville, York	63	7,294	42	2	681	3	.....	.....
216 STRATHROY, Middlesex	2,286	26,290	806	256	12,205	27	.....	11,203
217 Streetsville, Peel	6,579	5,030	208	51	999	69	.....	2,000
218 STURGEON FALLS, Nipissing..	2,155	19,405	810	104	3,149	.....	.....	17,301
219 Sturgeon Point, Victoria ...	.....	980	21	16	.....	.....	.....	.....
220 SUDBURY, Sudbury	.....	37,713	2,053	678	32,691	658	4,179	20,500
221 Sundridge, Parry Sound ...	769	1,706	95	37	.....	.....	.....	.....
222 Sutton, York	824	3,218	256	257	.....	.....	.....	300
223 Tara, Bruce	.....	3,983	.....	2	.....	9	840	535
224 Tavistock, Oxford	.....	6,006	482	3	.....	7	.....	.....
225 Teeswater, Bruce	2,029	5,206	328	142	20	127	8,448	200
226 Thamesville, Kent	430	6,386	275	211	2,993	.....	497	5,281
227 Thedford, Lambton	.....	3,084	193	12	.....	.....	.....	1,351
228 THESSALON, Algoma	1,685	12,709	636	190	6,664	22	.....	50,000
229 THORNBURY, Grey	990	5,807	.....	54	.....	38	105	3,050
230 THOROLD, Welland	1,756	21,948	720	160	5,430	613	6,980	8,000
231 TILBURY, Kent	11	12,406	415	8	873	100	.....	624
232 TILLSONBURG, Oxford	6,416	30,251	738	483	.....	2,562	965	9,500
233 Tiverton, Bruce	77	1,766	94	21	.....	.....	.....	.....
234 Tottenham, Simcoe	422	3,000	137	64	1,672	.....	.....	800
235 TRENTON, Hastings	.....	36,325	1,824	821	2,750	113	.....	57,250
236 Tweed, Hastings	1,024	9,212	20	68	.....	.....	.....	2,500
237 UXBRIDGE, Ontario	9,125	14,855	427	1,067	.....	125	.....	14,800
238 VANKLEEK HILL, Prescott ..	1,861	13,235	657	59	.....	79	.....	2,498
239 Vienna, Elgin	16	1,895	103	75	.....	54	.....	582
240 WALKERTON, Bruce	1,571	22,122	1,134	399	3,998	488	.....	11,500
241 WALKERVILLE, Essex	781	60,034	981	235	.....	194	.....	21,400
242 WALLACEBURG, Kent	2,407	25,226	1,241	250	.....	.....	.....	.....
243 Wardsville, Middlesex	58	1,662	81	34	.....	.....	.....	308
244 Waterdown, Wentworth	187	2,854	224	4	.....	.....	.....	315

NOTE.—The names of the towns are printed in small capitals.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*						Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Lighting of streets, water supply and fire protection.	Law costs.	Other expenses of municipal government.	Streets, bridges and parks.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	34,682	.....	....	50	60,205	1,632	709	331	864	1,640	194
.....	19,540	1,701	....	4,814	87,027	1,759	8,327	80	799	9,808	195
.....	.....	.....	....	149	2,815	130	.....	.....	57	299	196
.....	.....	.....	....	30	5,752	363	166	.....	202	773	197
.....	.....	.....	....	167	33,486	565	2,485	.....	686	542	198
.....	.....	.....	....	197	12,956	382	537	18	101	2,177	199
.....	.....	.....	....	80	6,601	145	400	.....	190	890	200
.....	44,169	320	....	3,479	151,435	1,015	9,313	110	13,668	9,725	201
.....	.....	.....	....	314	63,282	1,151	4,181	468	567	1,538	202
.....	72,379	1,500	....	*13,833	517,002	5,151	19,045	369	3,807	34,383	203
.....	.....	.....	....	†9,352	215,038	6,308	16,136	1,103	2,744	26,463	204
.....	4,000	.....	....	6,040	67,881	1,095	3,800	200	835	1,937	205
.....	10,662	158	75	701	28,780	369	2,441	.....	535	1,279	206
.....	21,300	831	....	‡18,017	89,777	988	11,064	81	1,361	2,607	207
.....	9,175	129	....	1,375	159,107	1,834	5,434	242	7,700	16,786	208
1,025	3,602	55	63	478	27,910	759	2,285	19	531	3,522	209
.....	.....	.....	....	278	3,942	128	.....	18	148	118	210
.....	.....	.....	....	77	4,020	216	.....	.....	289	727	211
.....	.....	.....	....	341	15,238	437	766	693	560	557	212
.....	84,084	.....	....	‖4,466	124,804	2,656	1,329	124	708	7,904	213
.....	3,500	.....	....	1,325	18,345	381	2,216	30	220	575	214
.....	.....	.....	....	28	8,113	362	552	470	156	1,260	215
.....	21,191	.....	62	802	75,128	1,022	3,342	78	8,540	3,695	216
.....	5,500	.....	....	147	20,583	322	527	3,820	228	643	317
.....	.....	.....	....	266	43,190	1,386	2,037	444	543	429	218
.....	.....	.....	....	35	1,052	98	.....	11	41	307	219
35,000	30,807	.....	....	1,675	165,954	2,028	6,504	631	¶13,974	13,020	220
.....	.....	.....	....	37	2,644	191	15	50	89	121	221
.....	.....	.....	29	39	4,923	188	252	.....	141	923	222
.....	.....	.....	....	170	5,539	223	418	.....	168	615	223
.....	.....	.....	....	765	7,263	177	.....	28	384	1,723	224
.....	.....	89	50	74	16,713	223	678	31	178	592	225
.....	.....	.....	....	39	16,112	302	732	7	3,714	1,501	226
.....	.....	.....	....	77	4,717	158	182	21	94	463	227
20,000	5,000	.....	....	650	97,556	1,119	2,541	25	3,673	12,196	228
.....	.....	.....	....	80	10,124	481	355	173	631	860	229
.....	15,000	1,013	....	368	61,988	912	4,819	101	814	1,690	230
4,500	.....	152	....	341	19,430	604	2,642	.....	341	963	231
2,500	9,665	442	300	601	64,423	752	2,903	.....	920	7,525	232
.....	.....	.....	38	68	2,064	97	.....	3	102	527	233
.....	.....	.....	49	97	6,241	311	2,069	.....	222	577	234
23,000	28,267	1,294	....	517	152,161	1,616	3,780	904	1,732	5,936	235
.....	.....	.....	....	34	12,858	368	1,192	.....	196	630	236
.....	.....	.....	....	433	40,832	819	1,606	179	1,325	1,497	237
.....	.....	.....	....	63	18,452	469	608	4	150	3,065	238
.....	.....	.....	....	43	2,768	120	10	11	83	430	239
.....	.....	.....	176	1,330	42,718	967	2,238	145	1,137	1,211	240
.....	6,867	198	....	292	90,982	2,413	5,928	316	1,944	30,869	241
.....	.....	.....	708	313	30,145	1,672	3,027	185	728	2,674	242
.....	.....	.....	....	17	2,160	118	.....	3	57	70	243
.....	.....	.....	....	75	3,659	145	15	.....	140	1,603	244

* Including $12,000, refund from Standard Chain Co. for loan of 1907.
† Including $5,585 from late Treasurer.
‡ Including $17,400, gift from P. W. Innes for permanent benefit of poor.
‖ Including $2,975, refund of advance to Waterworks Commissioners.
¶ Including $12,366, maintenance of electric light and power plant.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Disbursements, 1909.—*Continued.*

Villages and Towns.	Waterworks and electric light construction.	Buildings and other works.	Board of Health.	Support of the poor and other charities.	Administration of justice, including police service.	County Treasurer for levies.	Payment on account of schools and education.	Sinking Fund investments and deposits.
	$	$	$	$	$	$	$	$
194 RAINY RIVER	18,830	4,356	5	172	1,284	.....	5,121	2,275
195 RENFREW	26,538	810	50	476	300	1,752	12,613	.....
196 Richmond	.....	.....	.....	7	10	245	993	153
197 Richmond Hill	.....	198	8	55	25	411	1,220	.....
198 RIDGETOWN	.....	.....	30	273	782	738	6,396	.....
199 Rockland	.....	.....	71	98	21	480	7,179	.....
200 Rodney	.....	500	50	.....	4	428	995	.....
201 ST. MARY'S	7,084	134	161	1,135	1,548	.....	8,997	.....
202 SANDWICH	39,862	.....	281	230	374	2,364	2,600	.....
203 SARNIA	22,382	5,678	456	2,700	5,175	7,909	28,373	2,617
204 SAULT STE. MARIE	1,262	5,016	1,410	1,590	4,941	.....	38,972	.....
205 SEAFORTH	.....	40	738	24	520	1,200	5,661	9,934
206 Shelburne	25	.....	26	29	393	1,020	2,900	.....
207 SIMCOE	5,985	.....	1,206	1,587	1,259	2,048	9,100	.....
208 SMITH'S FALLS	11,024	69	123	538	1,320	.....	14,400	.....
209 SOUTHAMPTON	.....	38	68	108	66	1,580	5,128	.....
210 South River	.....	.....	199	35	136	.....	1,497	.....
211 Springfield	.....	.....	17	3	13	237	570	.....
212 STAYNER	.....	2,892	80	46	12	811	2,890	.....
213 STEELTON	60,893	1,187	1,168	191	984	.....	9,016	.....
214 Stirling	10,189	.....	13	106	140	.....	3,175	.....
215 Stouffville	90	.....	20	33	15	749	1,816	.....
216 STRATHROY	1,539	37	542	336	578	3,323	7,100	.....
217 Streetsville	6,100	.....	20	6	26	227	1,598	.....
218 STURGEON FALLS	999	.....	65	270	628	.....	5,959	.....
219 Sturgeon Point	.....	19	128	.....	3	138	161	.....
220 SUDBURY	29,345	603	177	529	1,779	.....	50,446	.....
221 Sundridge	.....	.....	53	.....	25	.....	740	505
222 Sutton	.....	262	15	148	41	351	612	.....
223 Tara	.....	.....	10	6	40	438	1,500	.....
224 Tavistock	.....	19	82	.....	21	425	1,968	.....
225 Teeswater	.....	.....	.....	25	159	627	2,084	2
226 Thamesville	.....	.....	25	49	192	283	2,318	.....
227 Thedford	.....	.....	20	20	20	218	1,213	.....
228 THESSALON	6,855	450	50	69	.....	.....	23,394	121
229 THORNBURY	.....	.....	5	16	88	300	1,733	38
230 THOROLD	21,108	.....	66	161	745	937	7,135	.....
231 TILBURY	979	.....	20	29	95	318	7,593	.....
232 TILLSONBURG	49	.....	75	141	611	2,391	9,699	5,162
233 Tiverton	.....	.....	.....	6	15	249	897	.....
234 Tottenham	.....	.....	10	6	.....	.....	6	.....
235 TRENTON	.....	766	1,405	504	6,385	.....	34,646	.....
236 Tweed	.....	.....	81	24	231	2,320	3,567	.....
237 UXBRIDGE	1,103	188	.....	335	492	1,162	4,000	.....
238 VANKLEEK HILL	.....	.....	131	125	17	680	5,186	.....
239 Vienna	.....	.....	10	15	11	360	500	229
240 WALKERTON	.....	.....	175	286	779	1,705	7,016	982
241 WALKERVILLE	.....	.....	397	585	3,505	.....	9,548	.....
242 WALLACEBURG	.....	.....	83	165	741	719	7,666	.....
243 Wardsville	.....	.....	4	2	.....	181	620	.....
244 Waterdown	.....	52	29	81	29	438	1,060	.....

NOTE.—The names of the towns are printed in small capitals.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets Dec. 31,'09		
Other investments and deposits.	School debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	No.
$	$	$	$	$	$	$	$	$	$	
3,059	457	2,222	1,622	2,511	800	172	48,062	12,143	10,910	194
.....	297	7,053	5,245	9,605	.....	1,485	86,997	30	6,715	195
.....	33	189	349	328	.....	22	2,815	.....	1,631	196
.....	80	191	1,200	178	.....	328	5,398	354	14	197
.....	475	3,807	12,786	3,815	.....	106	33,486	.....	1,879	198
.....	146	.....	250	295	.....	72	11,827	1,129	7,933	199
.....	.....	.....	1,500	35	.....	584	5,721	880	1,205	200
40,511	102	7,515	39,700	5,843	.....	3,960	150,521	914	4,237	201
.....	.....	2,327	4,918	2,119	.....	243	63,223	59	5,959	202
32,679	2,947	41,952	260,621	37,882	.....	2,503	516,629	373	72,541	203
11,505	.....	5,600	40,200	31,761	.....	6,224	201,235	13,803	27,552	204
6,000	.....	7,000	14,600	8,774	.....	969	63,327	4,554	2,597	205
6,000	215	1,114	9,305	1,526	.....	869	28,046	734	495	206
17,856	4,043	11,804	9,612	7,674	.....	1,502	89,777	.....	2,122	207
131	1,180	24,233	34,941	33,009	.....	3,009	155,973	3,134	2,900	208
.....	358	2,324	6,191	3,398	.....	354	26,729	1,181	7,211	209
.....	.....	.....	550	14	.....	206	3,049	893	663	210
.....	.....	566	703	253	.....	82	3,676	344	73	211
.....	194	1,495	1,500	1,488	.....	243	14,664	574	275	212
.....	746	1,906	25,000	6,477	.....	3,097	123,386	1,418	7,987	213
.....	64	329	.....	695	.....	212	18,345	.....	611	214
.....	.....	1,236	.....	1,032	.....	194	7,985	128	310	215
22,336	.....	6,363	11,415	3,572	.....	780	74,598	530	125	216
.....	.....	563	2,000	1,372	.....	171	17,623	2,960	374	217
.....	863	2,903	15,000	6,902	.....	343	38,771	4,419	39,185	218
.....	.....	.....	25	.....	.....	.....	931	121	22	219
2,023	527	3,180	28,863	7,178	82	890	161,779	4,175	11,456	220
.....	.....	.....	.....	255	.....	36	2,080	564	1,606	221
.....	.....	123	300	103	.....	46	3,505	1,418	134	222
875	192	400	25	370	.....	259	5,539	.....	.....	223
.....	.....	.....	.....	2	.....	236	5,065	2,198	27	224
.....	.....	9,209	1,200	1,104	.....	43	16,155	558	.....	225
.....	.....	723	5,000	614	.....	125	15,585	527	271	226
.....	.....	486	1,423	295	.....	25	4,638	79	1	227
.....	.....	1,125	42,000	2,856	132	851	97,457	99	5,579	228
.....	.....	717	3,050	476	.....	118	9,041	1,083	122	229
37	.....	4,619	9,500	7,042	.....	1,316	61,002	986	4,096	230
.....	167	2,945	97	2,338	.....	279	19,410	20	2,701	231
.....	.....	3,216	9,500	6,621	.....	4,816	54,381	10,042	1,010	232
.....	.....	.....	100	15	.....	.....	2,011	53	375	233
.....	135	381	800	280	.....	140	4,937	1,304	1,426	234
.....	.....	30,975	52,791	8,926	132	1,351	151,849	312	1,579	235
.....	508	151	2,500	707	.....	90	12,565	293	5,222	236
.....	4,500	10,396	8,000	3,732	.....	682	40,016	816	4,583	237
.....	299	617	.....	1,244	.....	722	13,317	5,135	436	238
.....	.....	.....	582	239	.....	90	2,690	78	715	239
323	.....	5,529	11,500	4,879	.....	629	39,501	3,217	2,124	240
.....	978	18,073	2,500	10,359	.....	3,446	90,861	121	649	241
.....	.....	5,218	.....	4,802	.....	1,120	28,800	1,345	6,029	242
.....	.....	.....	840	9	.....	17	1,921	239	105	243
.....	.....	.....	.....	7	.....	60	3,659	.....	293	244

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Villages and Towns.	Assets on Dec. 31, 1909.—*Continued.*						Liabilities Dec.3	
	Sinking Fund investments and deposits.	All other investments and deposits.	Waterworks and electric light plant.	Other property.	Miscellaneous.	Total assets.	County levy.	Local school rates.
	$	$	$	$	$	$	$	$
194 RAINY RIVER ..	2,275	3,059	17,928	9,860	15,103	71,278	.....	5,461
195 RENFREW	.....	.....	140,725	18,340	46,178	211,988	.....	101
196 Richmond	1,944	6	.....	2,875	456	6,912	259	603
197 Richmond Hill	.....	.....	.....	5,279	303	5,950	.....	.....
198 RIDGETOWN	.....	.....	.....	29,810	3,000	34,689	.....	.....
199 Rockland	.....	.....	.....	600	.....	9,662	.....	6,212
200 Rodney	.....	.....	.....	1,100	311	3,496	428	.....
201 ST. MARY'S	.....	46,511	85,000	25,000	23,987	185,649	.....	.....
202 SANDWICH	.....	.....	22,500	8,450	41,431	78,399	.....	4,028
203 SARNIA	29,484	50,250	225,000	81,000	410,980	869,628	.....	.....
204 SAULT STE. MARIE	64,286	227,929	.....	63,916	23,102	420,588	.....	3,125
205 SEAFORTH	44,196	43,376	.....	33,500	38,194	166,417	.....	.....
206 Shelburne	.....	6,000	19,900	13,250	195	40,574	.....	961
207 SIMCOE	.....	19,743	76,000	25,800	.....	123,665	.....	.....
208 SMITH'S FALLS	.....	109,952	300,000	70,300	31,263	517,549	.....	.....
209 SOUTHAMPTON ..	.....	10,000	33,870	6,626	13,184	72,072	.....	.....
210 South River ...	.....	.....	.....	1,797	160	3,513	.....	1,048
211 Springfield	.....	.....	75	5,285	38	5,815	.....	.....
212 STAYNER	.....	.....	24,000	7,565	11,063	43,477	.....	.....
213 STEELTON	.....	.....	77,408	12,166	268	99,247	.....	789
214 Stirling	.....	.....	6,531	11,735	419	19,296	1,219	1,588
215 Stouffville	.....	.....	25,000	4,500	.....	29,938	.....	.....
216 STRATHROY	.....	22,336	62,000	12,000	674	97,665	.....	.....
217 Streetsville	.....	.....	22,500	1,645	6,039	33,518	.....	1,023
218 STURGEON FALLS	.....	.....	94,050	6,776	19,275	163,705	.....	14,639
219 Sturgeon Point .	.....	.....	.....	950	1	1,094	.....	.....
220 SUDBURY	.....	2,023	142,052	12,307	16,616	188,629	.....	6,889
221 Sundridge	2,205	.....	.....	2,100	15	6,490	.....	891
222 Sutton	.....	.....	.....	3,676	90	5,318	.....	1,181
223 Tara	.....	875	.....	2,675	.....	3,550	.....	.....
224 Tavistock	.....	.....	.....	.....	240	2,465	890	96
225 Teeswater	3,241	5,500	10,500	10,000	8,000	37,799	.....	.....
226 Thamesville	.....	.....	6,250	9,925	967	17,940	.....	.....
227 Thedford	.....	.....	.....	140	12	232	.....	.....
228 THESSALON	1,282	.....	37,778	7,000	14,715	66,453	.....	.....
229 THORNBURY	1,184	.....	130	3,290	39	5,848	.....	.....
230 THOROLD	.....	31,850	125,000	21,500	3,927	187,359	1,025	1,853
231 TILBURY	.....	.....	14,575	2,600	29,592	49,488	349	.....
232 TILLSONBURG ...	44,756	18,000	36,700	22,100	.....	132,608	.....	.....
233 Tiverton	.....	.....	.....	2,000	.....	2,428	.....	.....
234 Tottenham	.....	.....	6,000	3,350	671	12,751	468	1,408
235 TRENTON	.....	.....	9,000	128,250	.....	139,141	.....	.....
236 Tweed	.....	.....	.....	5,850	.....	11,365	2,018	2,479
237 UXBRIDGE	.....	27,500	18,000	23,250	2,247	76,396	.....	.....
238 VANKLEEK HILL	.....	.....	.....	6,191	.....	11,762	.....	.....
239 Vienna	2,001	.....	.....	1,500	.....	4,294	.....	450
240 WALKERTON	7,816	7,273	45,000	24,800	210	90,440	.....	.....
241 WALKERVILLE ...	.....	.....	.....	20,713	287,009	308,492	.....	.....
242 WALLACEBURG ...	.....	.....	.....	33,600	.....	40,974	719	.....
243 Wardsville	.....	.....	.....	1,600	47	1,991	191	.....
244 Waterdown	.....	.....	.....	1,500	97	1,890	.....	.....

NOTE.—The names of the towns are printed in small capitals.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on Dec. 31, 1909.—*Continued.*

Railway debentures.	School debentures.	Waterworks debentures.	Electric light debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	
.....	22,921	33,000	.....	20,866	.....	.....	408	82,656	194
6,540	10,054	59,114	28,535	67,763	65,302	.....	.....	237,409	195
.....	2,905	.....	.....	2,641	855	.....	107	7,370	196
.....	2,239	.....	.....	626	.....	.....	.....	2,865	197
7,638	743	.....	.....	48,954	1,372	.....	.....	58,707	198
.....	5,457	.....	.....	.....	700	.....	1,111	13,480	199
.....	.....	.....	.....	.....	.....	.....	1,253	1,681	200
37,260	1,943	36,835	21,941	31,838	11,000	.....	715	141,532	201
.....	.....	11,469	.....	26,304	42,659	.....	368	84,828	202
.....	49,965	113,403	.....	539,897	42,069	.....	30,888	776,222	203
.....	76,187	.....	.....	604,444	19,100	.....	11,275	714,131	204
.....	3,000	3,500	2,500	160,417	1,750	.....	120	171,287	205
.....	6,681	15,672	.....	10,832	500	.....	120	34,766	206
.....	6,438	73,654	.....	57,927	4,213	.....	330	142,562	207
.....	16,009	176,324	.....	296,991	31,000	.....	1,495	521,819	208
.....	6,323	30,237	.....	42,909	1,000	.....	.....	80,469	209
.....	.....	.....	.....	.....	4	.....	386	1,438	210
.....	.....	.....	.....	4,170	.....	.....	71	4,241	211
.....	1,118	18,880	.....	12,560	.....	.....	80	32,638	212
.....	18,042	82,526	.....	9,000	.....	.....	1,304	111,661	213
.....	1,876	.....	.....	14,604	5,152	.....	91	24,530	214
.....	.....	18,303	.....	5,945	.....	.....	60	24,308	215
.....	.....	51,776	.....	41,510	.....	.....	.....	93,286	216
.....	.....	27,392	.....	4,907	.....	.....	.....	33,322	217
.....	17,974	53,810	.....	51,811	18,465	.....	3,000	159,699	218
.....	.....	.....	.....	.....	.....	.....	.....	.....	219
.....	55,623	51,383	34,479	12,336	10,500	.....	3,255	174,465	220
.....	.....	.....	.....	5,100	.....	1,700	25	7,716	221
.....	.....	.....	.....	2,331	.....	.....	.....	3,512	222
.....	2,387	.....	.....	6,278	535	.....	.....	9,200	223
.....	.....	.....	.....	.....	.....	.....	796	1,782	224
.....	.....	1,329	.....	14,295	1,000	.....	.....	16,624	225
.....	.....	.....	5,872	5,276	281	.....	311	11,740	226
.....	.....	.....	.....	5,211	.....	.....	.....	5,211	227
.....	20,000	17,607	11,258	12,954	14,188	.....	1,062	77,069	228
.....	.....	.....	.....	8,042	.....	.....	363	8,405	229
.....	.....	93,684	1,364	23,435	41,600	.....	447	163,408	230
.....	6,174	3,366	.....	37,958	624	.....	2,337	50,808	231
4,076	11,500	.....	.....	135,680	.....	.....	.....	151,256	232
.....	.....	.....	.....	.....	200	.....	.....	200	233
.....	607	.....	4,408	568	.....	.....	113	7,572	234
.....	23,000	.....	.....	146,449	8,500	.....	2,493	180,442	235
.....	8,171	.....	.....	4,849	.....	.....	.....	17,517	236
.....	.....	7,161	.....	58,647	6,800	.....	113	72,721	237
.....	8,604	.....	.....	15,712	2,498	.....	864	27,678	238
3,000	.....	.....	.....	1,600	.....	91	.....	5,141	239
.....	.....	33,808	.....	66,593	.....	.....	788	101,189	240
.....	45,516	.....	.....	143,128	21,400	.....	207	210,251	241
.....	.....	.....	.....	104,365	.....	.....	.....	105,084	242
.....	.....	.....	.....	.....	.....	.....	47	238	243
.....	.....	.....	.....	.....	315	.....	...	315	244

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS.

Village and Town Municipalities and Counties in which located.	Receipts, 1909.							
	Balance from 1908.	Municipal and school taxes.	Licenses.	Fees, rents, fines, etc.	Water, electric light and gas rates.	Interest and dividends.	Refund of money invested.	Borrowed for current expenses.
	$	$	$	$	$	$	$	$
245 Waterford, Norfolk	.....	7,500	.....	17	.....	15	.....	5,057
246 WATERLOO, Waterloo	.....	47,565	1,529	687	17,063	416	3,008	18,632
247 Watford, Lambton	133	10,835	335	35	.....	47	.....	16,084
248 WEBBWOOD, Sudbury	2,715	4,566	431	332	.....	.....	.....	2,000
249 WELLAND, Welland	514	52,241	1,825	561	5,109	2,969	7,650	143,681
250 Wellington, Prince Edward	.....	4,676	.....	50	.....	.....	.....	3,300
251 West Lorne, Elgin	1,215	3,504	508	31	.....	9	.....	102
252 Weston, York	185	13,001	.....	74	2,193	13	502	894
253 Westport, Leeds	1,157	3,365	318	54	.....	.....	.....	975
254 WHITBY, Ontario	91	23,981	810	429	7,538	.....	32	59,822
255 WIARTON, Bruce	102	22,283	1,020	306	5,580	470	478	23,406
256 Winchester, Dundas	261	7,195	23	56	.....	.....	.....	8,775
257 WINGHAM, Huron	281	21,698	1,043	556	12,247	710	9,911	12,100
258 Woodbridge, York	352	3,970	138	.....	.....	35	700	1,400
259 Woodville, Victoria	390	2,635	50	86	.....	.....	.....	600
260 Wroxeter, Huron	244	2,423	94	61	568	.....	.....	400
261 Wyoming, Lambton	436	3,232	.....	12	.....	.....	.....	727

NOTE.—The names of the towns are printed in small capitals.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Receipts, 1909.—*Continued.*						Disbursements, 1909.					
Borrowed on debentures for schools.	Borrowed on debentures for other purposes.	Premiums on debentures sold.	County grants.	Miscellaneous.	Total receipts.	Allowances, salaries and commissions.	Lighting of streets, water supply and fire protection.	Law costs.	Other expenses of municipal government.	Streets, bridges and parks.	No.
$	$	$	$	$	$	$	$	$	$	$	
.....	11,000	.....	....	22	23,611	336	.....	105	230	621	245
15,000	30,806	219	9404	987	145,316	1,923	8,333	324	*11,200	22,387	246
.....	5,370	157	....	456	33,452	546	1,197	107	230	2,542	247
.....	.....	.....	....	313	10,357	290	2	31	84	2,924	248
.....	.....	.....	....	446	214,996	2,251	7,043	1,258	1,880	16,263	249
.....	.....	.....	....	81	8,107	218	644	57	216	1,012	250
.....	.....	.....	100	92	5,561	158	343	86	160	822	251
.....	2,335	6	....	170	19,373	1,746	898	.....	†2,554	4,263	252
.....	.....	.....	....	76	5,945	328	132	.....	114	1,907	253
.....	16,000	981	....	194	109,878	1,157	2,400	230	‡11,623	4,469	254
.....	3,054	.....	208	2,334	59,241	839	6,127	271	983	1,457	255
.....	.....	.....	....	336	16,646	133	800	21	301	7,055	256
.....	8,000	.....	....	725	67,271	1,111	2,664	56	5,750	1,611	257
.....	.....	.....	....	370	6,965	368	95	35	148	915	258
.....	.....	.....	....	37	3,798	135	329	.....	137	291	259
.....	1,600	.....	....	323	5,713	179	105	.....	1,166	218	260
.....	.....	.....	....	143	4,550	307	259	50	119	487	261

* Including $9,463 for maintenance and operation of gas works.
† Including $2,220 for operating expenses of public utilities.
‡ Including $10,421 for operating expenses of public utilities.
‖ Including $4,324 for maintenance and operating electric light and power plant.

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Villages and Towns.	Disbursements, 1909.—*Continued.*							
	Waterworks and electric light construction.	Buildings and other works.	Board of Health.	Support of the poor and other charities.	Administration of justice, including police services.	County Treasurer for levies.	Payment on account of schools and education.	Sinking Fund investments and deposits.
	$	$	$	$	$	$	$	$
245 Waterford	.....	79	300	58	21	630	2,700	.....
246 WATERLOO	26,642	7,035	188	805	979	2,404	20,482	221
247 Watford	.....	.....	5	58	9	617	3,500	.....
248 WEBBWOOD	.....	.....	354	69	756	.....	2,202	.....
249 WELLAND	38,671	4,465	1,130	2,440	1,976	1,949	12,623	10,227
250 Wellington	.....	.....	274	52	15	855	1,087	.....
251 West Lorne	.....	.....	29	39	35	405	1,100	.....
252 Weston	1,023	.....	25	138	100	650	5,146	.....
253 Westport	.....	.....	.....	37	7	192	1,301	.....
254 WHITBY	.....	.....	1,117	146	692	1,665	7,175	.....
255 WIARTON	53	88	120	173	612	2,464	6,475	2,226
256 Winchester	.....	.....	20	81	21	707	2,578	.....
257 WINGHAM	6,996	141	.....	211	841	1,196	5,417	7,274
258 Woodbridge	.....	.....	610	6	49	399	1,174	.....
259 Woodville	.....	.....	10	44	6	353	1,432	.....
260 Wroxeter	1,600	.....	.....	107	.....	240	649	.....
261 Wyoming	.....	.....	5	26	159	222	1,325	.....

NOTE.—The names of the towns are printed in small capitals.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*								Assets Dec. 31,'09		
Other investments and deposits.	School debentures redeemed.	All other debentures redeemed.	Refund of moneys borrowed for current expenses.	Interest on loans, advances and debentures.	Discount on debentures sold.	Miscellaneous.	Total disbursements.	Cash in Treasury.	Taxes in arrears.	No.
$	$	$	$	$	$	$	$	$	$	
10,000	243	222	6,668	360	.....	1,108	23,611	.....	240	245
218	112	12,387	13,696	13,639	.....	2,315	145,290	26	1,900	246
.....	901	1,797	18,095	2,141	.....	349	32,094	1,358	149	247
.....	212	.....	.....	100	.....	52	7,076	3,281	672	248
20,402	161	512	78,128	11,461	.....	1,616	214,456	540	11,282	249
.....	.....	200	3,304	111	.....	20	8,065	42	152	250
.....	.....	.....	100	1	.....	1,722	5,000	561	10	251
.....	398	983	.....	1,297	.....	152	19,373	.....	1,606	252
.....	.....	.....	975	25	.....	420	5,438	507	1,391	253
1,806	.....	3,189	67,731	6,395	.....	61	109,856	22	3,714	254
.....	270	5,090	23,506	8,090	.....	327	59,171	70	1,518	255
.....	1,023	244	3,200	246	.....	15	16,445	201	.....	256
378	73	11,801	9,100	7,026	.....	1,862	63,508	3,763	101	257
700	209	138	1,400	328	.....	36	6,610	355	604	258
.....	.....	143	600	154	.....	127	3,761	37	731	259
.....	149	209	400	348	.....	65	5,435	278	153	260
.....	.....	657	500	303	.....	131	4,550	.....	846	261

STATISTICS OF ONTARIO VILLAGE AND TOWN

RECEIPTS, DISBURSEMENTS,

Villages and Towns.	Assets on Dec. 31, 1909.—*Continued.*						Liabilities Dec. 31	
	Sinking Fund investments and deposits.	All other investments and deposits.	Waterworks and electric light plant.	Other property.	Miscellaneous.	Total assets.	County levy.	Local school rates.
	$	$	$	$	$	$	$	$
245 Waterford		10,000		4,650	18,076	32,966		2,231
246 WATERLOO	2,480	26,533	*186,963	58,585	105,771	382,258		
247 Watford		13,700		7,800		23,007		
248 WEBBWOOD				280		4,233		
249 WELLAND	56,406	22,835	91,801	37,063	104,979	324,906		
250 Wellington			250	950	85	1,479		
251 West Lorne				680	1,753	3,004		
252 Weston			9,950	5,675	†2,178	19,409	786	1,341
253 Westport				450		2,348		1,255
254 WHITBY		1,806	81,640	24,925	24,546	136,653		
255 WIARTON	8,333	47,200	51,020	15,375	35,936	159,452		
256 Winchester				7,725		7,926		
257 WINGHAM	16,498	8,676	67,000	23,300	912	120,250	1,126	
258 Woodbridge		3,554	75	450	2,125	7,163		
259 Woodville			600	4,332	21	5,721		770
260 Wroxeter			1,600	9,125		11,156		
261 Wyoming				2,200		3,046		

NOTE.—The names of the towns are printed in small capitals.

* Including $47,932 for sewage disposal works.

† Payable by T'p. of York as share of school debt.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Liabilities on Dec. 31, 1909.—*Continued.*

Railway debentures.	School debentures.	Waterworks debentures.	Electric light debentures.	All other debentures.	Loans for current expenses and interest.	Due Sinking Fund.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	
.....	3,799	.....	.....	11,473	757	.....	575	18,835	245
.....	18,788	62,503	44,068	193,556	19,197	.....	*15,372	353,484	246
.....	3,453	.....	.....	28,659	.....	.....	.....	32,112	247
.....	1,804	.....	.....	.....	2,016	.....	33	3,853	248
.....	13,256	73,000	.....	62,825	129,141	.....	*²13,540	291,762	249
.....	.....	.....	.....	600	.....	.....	186	786	250
.....	.....	.....	.....	.....	2	.....	4,430	4,432	251
.....	5,945	.....	4,178	15,686	894	.....	298	29,128	252
.....	.....	.....	.....	.....	.....	.....	454	1,709	253
.....	.....	73,312	.....	60,735	15,472	.....	4,118	153,637	254
.....	10,265	45,389	.....	115,360	400	.....	.....	171,414	255
.....	.....	.....	.....	3,267	11,091	.....	.....	14,358	256
.....	17,857	20,512	33,041	78,490	3,100	.....	3,634	157,760	257
.....	4,726	.....	.....	986	2,854	.....	.....	8,566	258
.....	.....	.....	.....	2,720	.....	.....	.....	3,490	259
.....	4,570	.....	1,600	3,412	.....	.....	.....	9,582	260
.....	.....	.....	.....	5,259	227	.....	.....	5,486	261

* Including $8,817, balances unpaid of proceeds of school debentures and Isolation Hospital debentures.

*² Being amount of judgment in favor of Methodist Church.

† Payable to Township of Aldborough as per agreement at time of separation.

STATISTICS OF ONTARIO CITY
RECEIPTS, DISBURSEMENTS,

City Municipalities and County or District in which located.	Receipts, 1909. Balances from 1908.	Municipal and School taxes.	Liquor licenses.	Other licenses.	Fees, rents, tolls, fines, etc.	Water rates, electric light, etc.	Interest and dividends.	From Government, except for loans and schools.
	$	$	$	$	$	$	$	$
Belleville ..... (Hastings)	.....	119,701	3,767	2,166	3,561	55,831	3,313	144
Brantford ..... (Brant)	2,522	268,192	4,632	2,968	5,717	54,458	19,712	665
Chatham ..... (Kent)	10,560	184,245	3,517	1,148	5,895	34,157	1,677	484
Fort William ... (Thunder Bay)	350	261,439	3,755	4,278	13,989	*125,737	10,305	100
Guelph ..... (Wellington)	3,409	121,667	3,874	1,758	3,268	†157,873	23,584	25,690
Hamilton ..... (Wentworth)	13,578	876,559	28,162	7,070	68,767	273,047	36,312	12,495
Kingston ..... (Frontenac)	1,402	194,627	8,040	2,383	5,064	‡163,253	7,588	1,048
London ..... (Middlesex)	2,843	669,856	10,300	5,263	30,266	98,650	15,239	703
Niagara Falls ... (Welland)	6,170	127,448	3,781	1,230	1,311	55,366	2,927	170
Ottawa ..... (Carleton)	690	1,255,575	30,000	11,097	33,231	349,320	80,115	3,413
Peterborough ... (Peterborough)	.....	180,103	5,180	2,382	10,326	38,636	9,340	304
Port Arthur ..... (Thunder Bay)	1,285	213,226	4,037	2,901	11,342	¶109,022	16,133	.....
St. Catharines .. (Lincoln)	837	166,571	4,449	2,016	6,166	38,335	4,452	.....
St. Thomas ..... (Elgin)	14,212	169,387	4,182	1,492	2,273	§148,946	2,114	242
Stratford ..... (Perth)	1,655	171,159	4,154	1,928	2,294	24,051	3,051	337
Toronto ..... (York)	a639,863	5,248,933	118,301	72,232	7997,316	669,009	330,362	59,878
Windsor ..... (Essex)	.....	247,568	5,992	911	6,024	58,712	4,047	468
Woodstock ..... (Oxford)	46,154	93,814	2,211	1,066	2,744	51,528	10,721	578
Totals:								
1909.....	745,530	10,570,070	248,334	124,289	1,209,554	2,505,931	580,992	106,719
1908.....	640,605	9,311,533	243,669	105,927	1,131,382	2,350,135	715,166	45,293
1907.....	465,945	8,422,578	244,521	96,557	1,066,266	2,157,214	590,921	47,490
1906.....	518,637	7,838,673	248,354	86,699	957,358	1,829,889	457,158	46,198
1905.....	517,079	7,085,528	94,657	77,306	903,269	1,623,677	442,294	39,249
1904.....	401,440	6,780,953	95,556	72,955	754,636	1,368,568	465,058	42,186
1903.....	790,766	6,543,882	103,245	76,450	658,159	1,298,767	380,799	44,471
1902.....	409,575	6,506,033	103,198	58,959	631,040	1,242,240	421,082	12,502
1901.....	286,213	6,058,111	103,408	56,442	591,113	1,081,282	376,605	15,406
1900.....	590,631	5,872,998	101,636	52,519	483,396	1,041,769	390,376	16,228

* Including $22,144 telephone rents, and $64.60 gas, electric light and power rates.
† Including $127,144 revenue from electric light and power, and radial railway.
‡ Including $120,978 gas and electric light and power rates.
‖ Including $129,047 revenue from electric light and power and street railways.
¶ Including $79,962 revenue from gas, electric light and power, street r'y. and telephones.
§ Including $114,658 revenue from gas, electric light and power and street railway.
a. Including $935 from West Toronto annexed. b. Including $589,955 street r'y percentage.

MUNICIPALITIES, FOR THE YEAR 1909.

ASSETS AND LIABILITIES, 1909.

Receipts, 1909.—*Concluded.*						City Municipalities.
Refund from Sinking Fund and other investments.	Money borrowed for current expenses.	Money borrowed on debentures.		Miscellaneous.	Total Receipts.	
		For School purposes.	For all other purposes.			
$	$	$	$	$	$	
67,131	45,103	.....	61,984	3,490	366,191	Belleville.
103,004	165,800	.....	17,599	9,278	654,547	Brantford.
13,068	91,000	27,000	85,389	5,251	463,391	Chatham.
45,277	477,598	79,000	743,200	26,808	1,791,836	Fort William.
108,204	30,000	25,000	234,781	11,709	750,817	Guelph.
42,802	.....	80,000	449,744	147,458	2,035,994	Hamilton.
22,503	103,239	7,000	43,400	7,206	566,753	Kingston.
530,777	535,000	30,500	138,037	6,739	2,074,173	London.
.....	101,409	.....	67,154	5,501	572,467	Niagara Falls.
2,197,918	.....	67,800	487,627	135,221	4,652,007	Ottawa.
36,965	111,021	14,000	78,108	26,354	512,719	Peterborough.
58,571	329,004	105,000	318,762	39,412	1,208,695	Port Arthur.
31,862	116,789	25,000	7,200	3,907	407,584	St. Catharines.
28,784	340,000	.....	74,187	2,818	788,637	St. Thomas.
65,954	61,404	35,000	91,127	12,779	474,893	Stratford.
3,203,524	23,485	c355,000	3,100,433	523,054	15,341,390	Toronto.
43,560	203,551	19,000	70,642	3,757	664,232	Windsor.
13,716	68,500	.....	37,128	2,274	330,434	Woodstock.
						Totals:
6,613,620	2,802,903	869,300	6,106,502	973,016	33,456,760	1909.
3,387,862	3,187,605	1,515,083	7,583,428	1,191,388	31,409,076	1908.
4,494,363	5,467,295	1,079,286	5,319,056	629,604	30,081,096	1907.
3,646,557	4,545,584	356,937	4,434,437	819,680	25,786,161	1906.
2,186,145	3,430,389	184,259	4,123,295	570,124	21,277,271	1905.
4,371,659	3,595,941	252,579	4,948,640	550,394	23,700,565	1904.
1,663,444	3,859,210	117,100	2,274,151	414,527	18,224,971	1903.
1,747,006	3,470,904	347,200	1,495,463	423,702	16,868,904	1902.
1,882,906	2,300,005	52,300	2,796,363	383,126	15,983,280	1901.
995,679	3,186,589	62,500	1,420,190	195,256	14,409,767	1900.

c. Including $25,000 issued by West Toronto in 1908.

STATISTICS OF ONTARIO CITY
RECEIPTS, DISBURSEMENTS,

City Municipalities and County or District in which located.	Disbursements, 1909. Allowances, salaries and commissions.	Printing, advertising, postage and stationery.	Insurance, heating and lighting of buildings.	Law costs (including salaries).	Lighting of streets.	Water supply and fire protection.	Election of members of council.	Other expenses of municipal government.
	$	$	$	$	$	$	$	$
Belleville ..... (Hastings)	4,859	1,100	2,222	174	4,446	29,156	220	15,665
Brantford ..... (Brant)	11,867	2,368	4,571	1,176	13,462	55,337	1,424	9,905
Chatham ..... (Kent)	4,858	756	748	887	4,796	25,641	202	1,214
Fort William ... (Thunder Bay)	9.904	3,185	4,884	3,200	6,964	51,750	566	*66,891
Guelph ..... (Wellington)	8,183	1,298	3,405	2,649	5,940	23,931	345	†67,064
Hamilton ..... (Wentworth)	39,923	5,331	5,162	7,274	36,419	140,072	952	22,361
Kingston ..... (Frontenac)	11,285	3,724	1,911	1,003	11,434	36,297	855	‡92,548
London ..... (Middlesex)	23,118	8,161	8,707	2,047	29,122	106,930	1,800	8,425
Niagara Falls ... (Welland)	7,913	953	2,225	792	7,901	15,955	145	20,583
Ottawa ..... (Carleton)	33,669	9,522	3,859	6,882	28,029	219,065	2,288	¦91,031
Peterborough ... (Peterborough)	6,568	1,261	2,933	953	8,980	30,659	328	4,249
Port Arthur ..... (Thunder Bay)	12,605	5,234	762	3,621	3,782	24,021	113	¶68,936
St. Catharines ... (Lincoln)	7,288	1,219	1,038	1,496	9,540	15,804	217	500
St. Thomas ..... (Elgin)	8,292	1,565	2,194	520	9,674	33,228	168	§88,001
Stratford ..... (Perth)	5,126	1,918	2,330	1,648	8,355	22,984	374	75
Toronto ..... (York)	215,920	20,028	386.009	27,797	134,739	742,472	10,831	205.244
Windsor ..... (Essex)	11,277	1,044	6,993	1,010	14,742	39.436	408	449
Woodstock ..... (Oxford)	3,469	620	990	60	5,400	22.121	120	a14,122
Totals:								
1909.....	426,124	69,287	440,943	63,189	343,725	1,634,859	21,356	777,263
1908.....	387,087	59,242	187,828	74,125	329,272	1,469,393	21,099	602,038
1907.....	365,337	56,036	156,286	91,037	321,661	1,372,484	16,542	582,019
1906.....	362,624	51,844	246,856	70,839	321,128	1,261,537	17,966	439,440
1905.....	302,029	49,116	144,775	72,904	363,082	1,103,315	18,787	303,835
1904.....	276,821	42,156	115,070	89,332	366,211	1,149,193	17,646	100,654
1903.....	265,617	36,079	138,658	55,901	329,054	1,100,531	12,185	91,325
1902.....	258,069	36,548	88,752	64,732	315,120	983,587	12,058	57,087
1901.....	250,065	37,310	71,395	65,643	306,807	916,122	11,652	173,956
1900.....	239,881	42,456	62,166	59,542	288,934	875,782	12,304	128,526

* Including $45,863, cost of electric light and power maintenance and operation, and $16,917, cost of telephone maintenance and operation.
† Including $65,664, cost of maintenance and operation of public utilities.
‡ Including $91,063, cost of operating and maintaining public utilities.
¦ Including $75,112, cost of operating and maintaining public utilities.
¶ Including $62,170, maintenance of public utilities.
§ Including $87,858, maintenance of light, power and street railway.
a. Including $13,852, maintenance of electric light and power plant.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*
ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements, 1909.—*Continued.*

Streets, bridges and parks.	Construction of waterworks, sewers and electric light plants, etc.	Buildings and other property.	Board of Health (including salaries).	Support of the poor and other charities.	Administration of justice, police service, etc.	Payments on schools and education.	Sinking Fund investments and deposits.	City Municipalities.
$	$	$	$	$	$	$	$	
33,191	1,731	2,216	539	3,121	5,747	29,497	85,736	Belleville.
171,211	73,546	.....	13,891	10,692	17,949	81,561	47,828	Brantford.
14,266	8,710	.....	1,528	2,132	7,719	55,718	.....	Chatham.
118,476	538,313	14,462	20,840	683	15,758	133,965	114,883	Fort William.
95,229	94,733	*48,711	4,011	8,718	9,668	49,805	65,008	Guelph.
254,105	157,902	5,608	20,777	100,433	98,582	274,407	79,144	Hamilton.
43,227	28,920	12,308	3,613	11,323	15,529	55,848	13,498	Kingston.
112,681	100,227	34,011	6,519	47,331	60,987	228,845	204,993	London.
35,127	26,145	10,632	3,035	2,693	7,556	26,947	.....	Niagara Falls.
521,040	187,629	106,353	66,845	43,488	92,194	468,885	269,341	Ottawa.
33,966	129,813	17,249	5,364	2,684	9,794	77,701	71,016	Peterborough.
71,342	180,145	1,378	5,045	3,265	10,998	106,529	92,994	Port Arthur.
70,214	11,480	5,500	5,977	2,979	9,562	46,600	76,141	St. Catharines.
32,239	35,857	17,163	1,556	9,110	7,431	42,668	2,479	St. Thomas.
38,440	35,297	.....	997	3,847	7,394	72,593	38,295	Stratford.
†1,806,576	993,765	690,500	88,551	297,488	689,737	1,616,629	3,554,208	Toronto.
71,987	15,320	.....	3,217	4,967	12,796	76,104	17,130	Windsor.
16,375	8,403	5,076	2,123	2,523	4,432	25,810	4,202	Woodstock.
								Totals:
3,539,692	2,627,936	971,167	254,428	557,477	1,083,833	3,470,112	4,736,896	1909.
4,440,334	2,324,697	640,839	236,308	530,619	1,018,742	3,488,526	3,680,076	1908.
4,239,303	1,719,606	963,781	205,919	347,494	935,217	2,807,114	4,709,246	1907.
3,387,115	1,598,623	663,833	169,165	438,933	874,733	2,050,844	4,012,682	1906.
2,879,519	1,741,312	639,499	140,039	267,946	805,321	2,019,351	2,760,224	1905.
2,509,622	1,144,677	359,464	136,882	226,316	760,788	1,689,078	3,953,888	1904.
2,264,201	736,224	410,279	104,456	229,477	718,450	1,610,054	2,001,408	1903.
1,936,241	652,777	331,547	120,929	220,147	688,411	1,566,559	1,711,270	1902.
1,751,264	443,920	229,295	110,477	195,044	637,352	1,385,187	1,728,050	1901.
1,962,803	694,387	202,167	86,304	204,369	576,411	1,504,996	994,394	1900.

* Including $44,601, for "Winter Fair" buildings.
† Inclulding $196,108, for scavenging, and $198,212, snow and street cleaning.

STATISTICS OF ONTARIO CITY
RECEIPTS, DISBURSEMENTS,

City Municipalities and County or District in which located.	Disbursements, 1909.—*Continued.*					
	Other investments and special deposits.	Debentures redeemed.		Interest or discount on loans, etc.	Refund of money borrowed for current expenses.	Discount on debentures sold.
		Principal.	Interest.			
	$	$	$	$	$	$
Belleville ..... (Hastings)	205	32,662	35,800	2,421	63,084	.....
Brantford ..... (Brant)	4,612	10,581	64,166	3,084	39,215	.....
Chatham ..... (Kent)	6,037	59,364	46,278	9,030	195,000	.....
Fort William ... (Thunder Bay)	.....	17,443	108,740	22,138	368,366	.....
Guelph ..... (Wellington)	113,070	13,170	60,655	2,010	48,695	.....
Hamilton ..... (Wentworth)	79,706	151,372	210,937	9,984	208,231	5,058
Kingston ..... (Frontenac)	7,011	51,385	53,967	8,344	71,468	.....
London ..... (Middlesex)	352,357	116,270	141,272	2,187	460,000	988
Niagara Falls ... (Welland)	26,819	25,658	31,090	1,306	105,309	.....
Ottawa ..... (Carleton)	97,253	1,033,813	335,684	68,979	907,501	.....
Peterborough ... (Peterborough)	.....	5,326	44,939	1,046	57,136	.....
Port Arthur ..... (Thunder Bay)	46,077	14,695	112,995	10,824	419,661	.....
St. Catharines ... (Lincoln)	7,631	1,576	51,934	2,456	53,181	.....
St. Thomas ..... (Elgin)	27,658	46,014	37,971	3,563	370,000	.....
Stratford ..... (Perth)	15,650	53,597	33,811	6,220	114,000	.....
Toronto..... (York)	.....	962,243	1,212,709	54,445	26,363	.....
Windsor ..... (Essex)	57,005	68,621	41,773	4,098	201,689	1,135
Woodstock ..... (Oxford)	19,906	33,727	32,871	881	90,701	.....
Totals:						
1909.....	860,997	2,697,517	2,657,592	213,016	3,799,600	7,181
1908.....	1,244,905	1,477,292	2,409,398	174,400	4,928,194	441,032
1907.....	1,657,193	1,603,240	2,128,307	247,459	4,084,296	284,020
1906.....	1,320,659	1,896,508	1,965,443	118,058	3,574,882	73,645
1905.....	528,039	910,926	1,835,023	207,815	3,187,492	44,186
1904.....	450,420	2,546,624	1,833,857	146,613	4,633,406	229,289
1903.....	741,165	1,038,519	1,710,502	150,062	3,592,691	32,039
1902.....	362,942	1,245,560	1,775,182	157,323	2,888,733	16,083
1901.....	377,294	1,410,900	1,789,572	113,978	2,969,665	39,325
1900.....	428,743	1,433,721	1,732,495	135,184	2,066,224	6,856

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

ASSETS AND LIABILITIES, 1909.—*Continued.*

Disbursements.—*Concluded.*			Assets on December 31, 1909.				
Library.	Miscellaneous.	Total disbursements	Cash in treasury (exclusive of S. Fund).	Taxes in arrears.	Sinking Fund investments and deposits.	Other investments and special deposits.	City Municipalities.
$	$	$	$	$	$	$	
1,600	10,799	366,191	.....	65,211	207,290	15,320	**Belleville.**
5,200	9,280	652,926	1,621	7,162	400,083	*77,140	**Brantford.**
1,733	5,991	452,608	10,783	71,566	.....	140,057	**Chatham.**
1,004	†169,040	1,791,455	381	58,784	308,089	27,991	**Fort William.**
5,913	9,711	741,922	8,895	23,688	250,540	‡320,483	**Guelph.**
39,684	72,846	2,026,270	9,724	266,324	781,394	195,341	**Hamilton.**
.....	12,332	547,830	18,923	3,283	118,503	39,924	**Kingston.**
10,047	2,178	2,069,203	4,970	44,585	412,752	1,088,170	**London.**
1,714	11,969	372,467	.....	39,327	.....	26,819	**Niagara Falls.**
17,218	39,979	4,650,547	1,460	59,000	2,128,661	97,753	**Ottawa.**
4	750	512,719	.....	11,705	214,155	.....	**Peterborough.**
1,205	12,460	1,208,687	8	65,995	163,962	289,413	Port Arthur.
2,914	21,781	407,028	556	24,229	192,257	42,755	St. Catharines.
2,700	6,205	786,256	2,381	36,178	32,479	21,658	**St. Thomas.**
1,500	9,807	474,258	635	43,404	236,794	17,510	Stratford.
54,551	338,538	14,129,343	1,212,047	1,158,370	9,323,590	31,588	**Toronto.**
4,191	6,256	661,648	2,584	38,497	211,839	* 20,246	Windsor.
2,719	2,993	299,644	30,790	6,750	224,338	37,928	Woodstock.
							Totals:
153,897	742,915	32,151,002	1,305,758	2,024,058	15,206,726	2,490,096	1909.
122,801	375,299	30,663,546	745,530	2,004,919	14,991,193	3,670,554	1908.
108,634	438,774	29,441,005	640,091	1,795,395	13,950,138	3,178,093	1907.
101,808	301,051	25,320,216	465,945	1,655,239	12,589,007	2,597,372	1906.
84,143	349,956	20,758,634	518,637	1,638,977	11,702,273	1,802,322	1905.
90,924	314,555	23,183,486	517,079	1,669,999	10,657,120	1,750,357	1904.
69,684	384,970	17,823,531	401,440	1,761,437	10,357,171	2,027,857	1903.
71,791	516,690	16,078,138	790,766	1,866,932	9,537,652	1,818,697	1902.
58,571	500,861	15,573,705	409,575	2,217,157	9,222,556	1,806,587	1901.
58,289	326,620	14,123,554	286,213	2,267,489	8,912,703	1,918,302	1900.

* Including $2,600, increase of value of gas stock.
† Including $150,000 bonus to G. T. P. Railway.
‡ Including $1,887, "School Building Funds," previously omitted.

STATISTICS OF ONTARIO CITY
RECEIPTS, DISBURSEMENTS,

City Municipalities and County or District in which located.	Assets on December 31, 1909.—*Concluded.*					Liabilities	
	Land, buildings, library, etc.	Waterworks and electric light plant.	Other property (cemetery, fire-halls, etc).	Miscellaneous.	Total assets.	Local school rates unpaid.	Debentur's Aid to railways.
	$	$	$	$	$	$	$
Belleville ..... (Hastings)	113,907	301,870	.....	188,142	891,740	.....	.....
Brantford ..... (Brant)	324,364	470,953	42,092	410,101	1,733,516	.....	57,000
Chatham ..... (Kent)	177,310	234,687	64,980	538,088	1,237,471	.....	50,000
Fort William ... (Thunder Bay)	193,541	1,255,824	55,370	*815,386	2,715,366	.....	286,000
Guelph ..... (Wellington)	222,180	889,561	8,000	421,408	2,144,755	3,235	193,000
Hamilton ..... (Wentworth)	1,222,926	2,414,885	†1,174,600	708,784	6,773,978	.....	250,000
Kingston ..... (Frontenac)	243,857	641,950	29,636	38,879	1,134,955	.....	51,318
London ..... (Middlesex)	801,465	969,411	44,000	23,650	3,389,003	.....	325,000
Niagara Falls ... (Welland)	30,963	338,130	33,242	316,734	785,215	.....	.....
Ottawa ..... (Carleton)	806,000	2,825,000	150,000	1,253,064	7,320,938	.....	.....
Peterborough ... (Peterborough)	187,898	401,149	25,000	361,129	1,201,036	.....	.....
Port Arthur ..... (Thunder Bay)	424,651	1,323,984	17,200	755,782	3,040,995	3,714	75,000
St. Catharines ... (Lincoln)	136,098	404,675	56,450	195,902	1,052,922	1,841	61,320
St. Thomas ..... (Elgin)	239,874	599,932	15,800	73,945	1,022,247	.....	18,486
Stratford ..... (Perth)	128,050	‡301,833	32,685	49,639	810,550	.....	60,000
Toronto ..... (York)	13,787,051	7,500,000	1,380,388	5,732,718	40,125,752	.....	1,143,718
Windsor ..... (Essex)	164,156	305,000	22,500	16,234	781,056	.....	.....
Woodstock ..... (Oxford)	123,501	295,581	15,450	7,245	741,583	.....	.....
Totals:							
1909.....	19,327,792	21,474,425	3,167,393	11,906,830	76,903,078	8,790	2,570,842
1908.....	17,754,855	20,014,564	3,150,111	10,438,447	72,770,173	68,909	2,351,934
1907.....	15,649,850	17,953,670	2,223,753	9,928,569	65,319,559	50,673	2,673,938
1906.....	14,982,335	16,536,169	2,003,842	8,566,741	59,396,650	54,888	2,675,856
1905.....	14,548,182	15,191,364	1,890,660	7,513,996	54,806,411	35,857	2,677,694
1904.....	14,179,450	14,136,806	1,806,793	6,486,986	51,204,590	30,743	2,552,112
1903.....	13,595,690	12,790,250	1,642,656	6,849,294	49,425,795	29,371	2,553,468
1902.....	13,537,308	12,479,279	1,604,045	5,908,798	47,543,477	25,587	2,554,767
1901.....	13,457,337	12,038,039	1,563,478	5,099,940	45,814,669	17,854	2,506,009
1900.....	13,408,936	11,853,169	1,596,569	4,907,776	45,151,157	43,667	2,396,533

* Including $291,166, advances to railways and other enterprises.
† Including $1,070,152, sewage disposal system.
‡ Including $75,000, sewage disposal system.

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*
ASSETS AND LIABILITIES, 1909.—*Continued.*

on December 31, 1909.

outstanding.

Schools.	Local improvements.	Municipal works.	All other objects.	Loans for current expenses.	Miscellaneous.	Total liabilities.	City Municipalities.
$	$	$	$	$	$	$	
11,011	115,648	271,620	491,000	60,943	14,582	964,804	Belleville.
124,757	439,562	452,580	480,833	*182,152	26,432	1,763,316	Brantford.
25,733	510,035	140,943	358,271	34,500	.....	1,119,482	Chatham.
268,408	645,655	1,260,736	371,293	477,598	58,094	3,367,784	Fort William.
101,925	402,316	524,161	376,876	114,305	14,284	1,730,102	Guelph.
405,887	626,675	1,390,954	2,834,733	.....	77,359	5,585,608	Hamilton.
49,576	281,621	482,825	365,950	78,239	28,316	1,337,845	Kingston.
205,100	682,200	869,879	1,425,925	75,000	173,152	3,756,256	London.
52,775	304,927	211,900	124,621	65,249	.....	759,472	Niagara Falls.
1,056,962	1,475,273	1,320,154	3,958,514	673,742	151,625	8,636,270	Ottawa.
207,937	337,616	337,000	267,750	111,021	4,144	1,265,468	Peterborough.
212,500	485,542	1,239,097	496,671	177,004	631,949	3,321,477	Port Arthur.
35,000	205,304	70,000	868,134	100,758	14,613	1,356,970	St. Catharines.
90,620	161,732	420,999	243,095	†45,486	11,460	991,878	St. Thomas.
49,327	339,463	177,551	404,000	41,000	50,315	1,121,656	Stratford.
‡3,959,176	10,324,175	7,163,776	13,822,143	2,914	4,608,157	41,024,059	Toronto.
161,854	448,146	128,017	184,260	3,921	55,202	981,400	Windsor.
32,900	132,173	280,262	313,296	3,000	15,901	777,532	Woodstock.
							Totals:
7,051,448	17,918,063	16,742,454	27,387,365	2,246,832	5,935,585	79,861,379	1909.
6,192,034	16,775,962	15,436,846	26,339,763	3,279,947	4,194,714	74,640,109	1908.
4,781,278	13,806,495	13,318,003	24,761,467	4,972,716	4,829,163	69,193,733	1907.
3,812,557	12,579,724	11,917,389	23,560,553	3,521,151	4,156,695	62,278,813	1906.
3,489,658	11,438,137	11,743,857	22,266,867	2,314,724	3,980,754	57,947,548	1905.
3,356,167	10,301,318	11,034,292	20,977,758	2,086,376	2,925,067	53,263,833	1904.
3,148,129	9,709,193	9,437,852	20,718,410	3,116,016	1,726,883	50,439,322	1903.
3,070,364	9,142,266	9,441,554	20,005,369	2,902,247	1,566,190	48,708,344	1902.
2,811,053	9,456,757	8,930,549	19,906,263	2,336,794	1,590,479	47,555,758	1901.
2,751,019	8,817,258	8,645,870	19,562,189	3,006,831	1,685,988	46,909,355	1900.

* Including $7,220, Trust Funds, formerly classed as "Miscellaneous liabilities."
† Including $5,000, advances for local improvements previously omitted.
‡ The debenture liability of Toronto city, include an aggregate of $1,386,286, assumed from East and West Toronto in 1909 when annexed to Toronto City, of which $67,807 were for schools; also $40,000 from York township, Glen Road bridge debentures.

STATISTICS OF ONTARIO COUNTY

Showing abstract statement of Receipts, Disbursements, Assets and Liabilities

County Municipalities.	Receipts, 1909.						
	Balance from 1908.	Rates from local municipalities.	Licenses.	Fees, rents, tolls, fines, etc.	Surplus fees from Registrar.	Interest and dividends.	From Legislature for schools.
	$	$	$	$	$	$	$
1. Brant	13,378	20,186	215	315	175	238	8,736
2. Bruce	3,627	69,238	796	314	1,163	46	15,090
3. Carleton	.....	31,779	366	493	693	1,203	11,281
4. Dufferin	14	23,731	395	236	.....	48	5,772
5. Elgin	8,597	39,167	300	155	130	121	11,139
6. Essex	.....	39,187	470	43	1,169	46	12,519
7. Frontenac	79	42,123	192	78	.....	104	11,032
8. Grey	.....	47,662	1,551	130	512	954	16,860
9. Haldimand	1,130	28,206	150	30	22	31	6,216
10. Haliburton	.....	3,205	5	81	.....	.....	5,477
11. Halton	.....	40,070	224	9	28	3	4,803
12. Hastings	14	69,725	573	31	661	631	17,264
13. Huron	2,207	76,546	1,063	488	948	3,265	16,312
14. Kent	383	33,169	670	618	1,116	113	13,485
15. Lambton	8,926	63,890	237	7	734	332	12,174
16. Lanark	8,267	38,305	140	.....	.....	.....	7,259
17. Leeds and Grenville	8,819	39,406	630	452	31	489	10,949
18. Lennox and Addington	2,322	43,049	315	73	.....	362	6,877
19. Lincoln	3,322	34,358	275	23	712	136	5,276
20. Middlesex	34,925	121,087	714	.....	149	1,499	16,818
21. Norfolk	3,001	28,715	288	101	143	.....	6,787
22. Northumberland & Dur.	23,157	63,448	1,152	.....	9	274	14,546
23. Ontario	20,933	46,474	560	43	79	.....	10,817
24. Oxford	.....	58,201	1,160	80	633	562	13,776
25. Peel	41,199	30,391	200	43	.....	598	6,358
26. Perth	5,327	70,893	898	77	19	1,118	11,432
27. Peterborough	.....	28,079	405	193	329	661	9,406
28. Prescott and Russell	.....	26,605	517	310	51	416	6,507
29. Prince Edward	2,974	23,252	125	77	.....	485	4,574
30. Renfrew	6,786	33,100	235	29	160	184	10,274
31. Simcoe	2,316	103,343	805	570	2,762	.....	17,474
32. Stormont, Dun. & Glen.	.....	62,357	1,456	114	66	.....	15,812
33. Victoria	735	35,273	591	933	30	211	9,612
34. Waterloo	52	73,748	380	101	710	322	9,562
35. Welland	2,919	29,318	294	.....	1,349	40	6,339
36. Wellington	6,009	66,887	441	86	39	120	14,146
37. Wentworth	.....	42,813	172	564	1,786	3	10,064
38. York	298	70,750	800	979	2,704	.....	20,779
Totals:							
1909	211,716	1,797,736	19,760	7,876	19,112	14,615	413,604
1908	158,417	1,659,095	18,938	7,418	25,509	17,743	417,003
1907	237,781	1,459,209	18,670	6,741	24,990	13,509	387,576
1906	231,836	1,529,950	19,792	7,900	22,283	17,452	198,212
1905	222,494	1,320,461	19,261	9,211	18,572	21,149	142,464
1904	292,195	1,180,799	19,103	7,735	16,795	15,892	138,341
1903	244,271	1,115,242	15,613	7,596	17,929	15,002	141,129
1902	190,104	1,114,766	15,102	9,020	14,520	12,505	137,792
1901	192,995	1,060,743	15,456	10,132	12,614	10,808	144,370
1900	220,596	1,099,357	15,206	12,305	16,131	13,241	142,954

MUNICIPALITIES, FOR THE YEAR 1909.

of the County Municipalities for the year ending December 31st, 1909.

Receipts, 1909.—Continued.								Disbursements, 1909.		
From Legislature for administration of justice.	Refund of moneys loaned or invested.	Money borrowed for current expenses.	Money borrowed on debentures.	Non-resident taxes collected.	Towns or cities separated from county for various services.	Miscellaneous.	Total receipts.	Attendance at meetings of council and committees.	Allowances, salaries and commissions.	No.
$	$	$	$	$	$	$	$	$	$	
4,516	.....	.....	.....	31	3,456	314	51,560	961	1,405	1
2,061	.....	32,000	20,000	1,621	.....	2,598	148,554	2,017	2,327	2
6,692	162	98,116	20,000	2,311	13,375	1,902	188,373	1,435	2,381	3
1,895	.....	9,500	.....	125	.....	108	41,824	664	1,549	4
5,360	.....	75,000	.....	571	3,532	4,469	148,541	1,757	2,345	5
6,526	.....	12,583	.....	4,130	3,322	4,208	84,203	1,234	2,450	6
2,202	.....	80,293	.....	622	3,628	3,203	143,556	3,061	1,635	7
4,372	.....	.....	.....	1,007	.....	728	73,776	2,725	2,491	8
2,435	.....	31,000	.....	48	.....	794	70,062	1,752	1,170	9
.....	.....	2,000	.....	227	.....	76	11,071	275	673	10
2,101	.....	9,700	.....	44	.....	278	57,260	579	1,188	11
5,731	.....	54,259	30,000	518	7,200	14,639	201,246	3,003	2,300	12
3,208	3,020	23,000	20,000	428	.....	2,878	153,363	2,199	3,318	13
5,874	.....	38,775	.....	1,857	2,914	5,356	104,330	1,822	2,320	14
3,573	.....	25,000	.....	4,751	.....	647	120,271	1,873	2,415	15
2,062	6,380	12,000	.....	1,051	.....	18,533	93,997	1,522	1,960	16
4,765	10,582	.....	.....	93	3,050	589	79,855	2,026	2,526	17
2,121	.....	16,203	18,000	586	.....	5,105	95,013	1,309	1,240	18
3,508	.....	57,000	.....	535	3,359	6,974	115,478	689	1,615	19
10,344	2,554	68,000	.....	630	10,550	18,731	286,001	2,084	5,689	20
2,947	.....	2,200	.....	742	.....	1,343	46,267	1,310	1,482	21
3,759	.....	2,000	.....	293	.....	1,031	109,669	2,745	2,460	22
2,839	.....	135,000	.....	570	.....	561	217,876	1,986	2,015	23
2,828	.....	18,586	50,000	288	.....	32,845	178,959	3,224	2,601	24
3,354	.....	12,000	.....	11	.....	14,935	109,089	705	1,760	25
4,172	.....	40,000	.....	92	2,445	12,739	149,212	1,307	2,048	26
2,994	632	15,191	4,000	1,192	3,106	1,738	67,926	1,117	1,523	27
1,810	.....	3,126	13,000	1,525	.....	1,557	55,424	1,470	900	28
774	.....	4,404	35,000	56	.....	12,878	84,599	873	1,630	29
2,614	.....	4,000	.....	315	.....	550	58,247	1,553	2,015	30
3,035	.....	95,000	.....	1,376	.....	12,899	239,580	2,936	3,695	31
2,833	.....	6	.....	562	.....	1,445	84,651	1,752	2,100	32
2,050	931	40,740	20,000	1,406	550	3,096	116,158	1,785	2,069	33
3,920	.....	34,488	.....	37	.....	*7,549	130,869	1,508	1,534	34
3,002	.....	.....	.....	1,223	3,640	1,080	49,204	1,199	1,422	35
4,056	.....	60,000	.....	504	2,934	10,270	165,492	1,664	2,088	36
8,331	87	20,888	.....	897	10,713	8,724	105,042	2,279	3,875	37
3,549	.....	31,360	.....	346	5,302	14,857	151,724	3,390	2,580	38
138,213	24,348	1,163,418	230,000	32,621	83,076	232,227	4,388,322	65,790	80,794	
116,401	110,533	1,343,018	439,478	37,557	77,215	173,202	4,601,527	65,368	81,437	
109,632	57,287	1,085,723	166,772	37,280	73,220	165,588	3,843,978	66,098	79,135	
139,768	86,497	783,697	222,600	37,839	80,255	143,654	3,521,735	54,203	77,314	
122,228	60,909	822,650	136,800	33,589	64,159	121,485	3,115,432	48,526	78,863	
131,922	62,859	837,834	225,033	28,120	74,557	148,046	3,179,231	54,358	73,783	
90,283	15,207	706,380	305,145	32,525	68,729	120,145	2,895,196	47,504	75,228	
127,786	56,723	536,480	149,067	34,604	93,019	51,805	2,543,293	42,768	73,516	
122,330	77,760	487,297	62,039	36,861	90,186	51,538	2,375,129	41,407	75,982	
138,685	68,399	472,430	77,491	42,540	89,910	63,286	2,472,531	39,616	78,454	

* Including $4,000, proceeds of sale of House of Refuge land.

STATISTICS OF ONTARIO COUNTY

Showing abstract statement of Receipts, Disbursements, Assets and Liabilities

Disbursements, 1909.—Continued.

County Municipalities.	Printing, postage and stationery.	Insurance, heating, lighting and care of buildings.	Law costs (including salaries).	Other expenses of municipal government.	Roads and bridges.	Grants to Municipalities for roads and bridges.	Buildings and other works.
	$	$	$	$	$	$	$
1. Brant	503	2,215	200	136	915	.....	4,069
2. Bruce	1,249	1,460	665	408	31,915	6,767	145
3. Carleton	495	718	1,886	1,614	3,352	.....	1,288
4. Dufferin	439	819	.....	275	1,253	1,025	254
5. Elgin	393	1,412	206	683	18,147	.....	*4,985
6. Essex	1,384	1,008	604	749	8,640	.....	460
7. Frontenac	618	877	399	126	16,116	.....	.....
8. Grey	1,054	1,438	78	1,164	4,590	.....	1,185
9. Haldimand	639	1,029	77	177	5,588	.....	15,075
10. Haliburton	92	83	.....	.....	46	.....	.....
11. Halton	612	323	.....	112	23,268	2,678	485
12. Hastings	1,317	1,812	5,110	205	36,676	2,963	15,248
13. Huron	885	1,038	59	152	32,739	.....	.....
14. Kent	526	1,745	300	66	671	2,932	831
15. Lambton	841	1,487	963	301	6,945	425	1,293
16. Lanark	715	1,888	.....	153	16,864	99	9,106
17. Leeds and Grenville	804	1,319	50	556	617	.....	.....
18. Lennox and Addington	575	1,056	426	1,130	1,912	16,847	758
19. Lincoln	568	1,000	.....	832	10,957	.....	.....
20. Middlesex	1,560	412	328	250	44,445	1,597	412
21. Norfolk	470	1,410	.....	396	3,408	888	.....
22. Northumberland & Dur.	800	459	80	1,919	1,072	530	.....
23. Ontario	1,007	990	50	256	13,344	.....	493
24. Oxford	883	3,344	910	169	81,901	10,484	3,259
25. Peel	619	893	.....	167	47,731	.....	2,653
26. Perth	458	709	19	244	30,135	10,723	.....
27. Peterborough	687	1,239	100	273	7,711	1,325	1,196
28. Prescott and Russell	541	858	96	720	11,913	.....	399
29. Prince Edward	520	627	.....	523	52,675	500	1,429
30. Renfrew	444	1,945	82	194	709	.....	179
31. Simcoe	1,598	1,555	487	1,267	19,514	39,908	28
32. Stormont, Dun. & Glen.	874	912	9	68	2,809	504	1,867
33. Victoria	1,253	1,726	78	89	3,401	.....	9,701
34. Waterloo	1,392	2,175	58	246	10,744	20,654	391
35. Welland	368	1,468	.....	591	646	.....	82
36. Wellington	581	125	48	1,005	32,646	1,427	1,232
37. Wentworth	1,016	89	806	584	42,867	.....	.....
38. York	1,213	1,690	500	373	37,278	.....	2,225
Totals:							
1909	29,993	45,353	14,674	18,173	666,160	122,276	80,728
1908	30,639	44,668	15,808	21,907	687,450	111,136	41,365
1907	30,355	46,108	11,929	18,677	459,346	140,640	119,983
1906	29,589	38,274	14,181	19,640	360,440	92,960	197,002
1905	27,181	48,126	12,181	26,717	293,927	80,045	74,617
1904	28,581	42,498	9,072	19,755	410,577	132,130	105,804
1903	25,335	46,860	7,689	27,735	300,908	105,007	62,197
1902	22,747	35,061	10,679	15,799	211,415	23,657	148,025
1901	25,273	41,361	6,785	26,716	181,634	19,873	34,938
1900	22,713	37,960	6,673	19,267	139,281	23,829	78,813

* Registry office

MUNICIPALITIES, FOR THE YEAR 1909.—*Continued.*

of the County Municipalities for the year ending December 31st, 1909.—*Continued.*

Disbursements, 1909.—Continued.

Support of the poor and other charities.	Administration of justice, gaol maintenance, etc.	Grants to schools and other payments on education.	Sinking Fund investments and deposits.	Other investments and special deposits.	Debentures redeemed (principal).	Interest paid on debentures.	Refund of money borrowed for current expenses.	Interest or discount on loans and advances.	Non-resident taxes paid local municipalities.	No.
$	$	$	$	$	$	$	$	$	$	
1,380	8,451	13,452	.....	.....	1,706	724	.....	.....	31	1
6,245	10,221	29,779	.....	.....	3,203	2,683	35,000	843	1,621	2
3,747	23,207	18,401	3,114	.....	1,081	4,727	114,599	1,510	3,492	3
128	7,551	11,570	.....	.....	.....	.....	12,500	168	95	4
6,491	12,631	24,661	.....	.....	3,518	1,007	66,000	1,536	332	5
5,252	16,372	24,801	.....	.....	3,255	1,650	10,576	251	3,203	6
3,668	14,295	17,078	.....	.....	22,883	3,780	55,778	1,721	622	7
6,145	12,390	33,234	2,552	378	.....	1,080	.....	.....	923	8
239	7,187	16,352	.....	.....	.....	.....	19,000	536	48	9
78	798	7,174	.....	.....	.....	.....	1,343	18	201	10
2,757	6,170	10,854	.....	.....	.....	.....	3,162	617	44	11
7,967	19,835	27,738	.....	.....	2,271	3,106	68,497	1,618	605	12
8,054	12,136	35,210	10,528	.....	.....	3,734	23,000	262	218	13
4,877	15,588	25,885	.....	.....	5,042	892	32,635	1,444	3,857	14
6,519	13,322	25,653	.....	.....	894	284	25,000	304	5,001	15
7,176	7,566	15,944	.....	3,538	4,100	3,624	12,000	144	1,051	16
6,141	10,952	24,447	11,652	.....	690	1,500	.....	57	93	17
1,637	8,681	22,119	.....	536	9,700	2,629	16,203	201	586	18
7,626	12,923	13,787	.....	.....	2,000	300	59,000	1,274	675	19
13,418	27,612	30,604	30,929	.....	.....	13,607	72,000	872	1,034	20
5,829	13,560	15,867	.....	.....	.....	.....	.....	445	742	21
10,056	16,331	33,773	2,274	.....	1,156	4,064	3,000	13	220	22
8,166	10,607	22,009	.....	.....	850	622	121,000	1,340	586	23
7,738	9,976	24,677	.....	.....	12,292	8,194	7,107	399	88	24
2,168	8,681	13,393	.....	.....	2,945	3,984	12,000	.....	11	25
7,209	12,079	18,689	7,810	.....	1,200	5,100	40,000	624	112	26
3,557	11,009	14,101	1,948	.....	4,027	3,942	10,188	678	976	27
5,974	6,855	18,960	.....	.....	2,471	1,885	.....	307	1,525	28
3,952	3,767	12,384	.....	.....	2,265	2,838	.....	260	56	29
2,577	7,403	20,453	.....	.....	2,851	1,841	5,000	14	893	30
13,759	14,949	35,514	.....	.....	6,571	4,416	60,000	1,835	1,376	31
1,307	8,251	38,514	.....	.....	1,651	942	9,919	639	562	32
8,905	8,776	16,586	1,740	.....	.....	1,600	51,015	1,256	1,485	33
13,017	9,704	23,360	.....	.....	2,464	799	40,626	882	37	34
6,043	12,062	14,619	.....	.....	.....	.....	.....	53	1,223	35
10,603	13,504	26,280	.....	.....	.....	.....	66,000	1,475	533	36
1,185	25,768	15,743	.....	90	3,949	3,346	.....	1,880	897	37
7,774	24,889	31,766	.....	.....	4,225	3,239	27,008	1,589	222	38
219,364	466,059	825,431	72,547	4,542	109,260	92,139	1,079,156	27,065	35,276	
199,573	447,366	805,921	55,888	16,953	234,091	90,387	1,317,778	30,960	38,517	
196,688	416,547	761,827	97,704	14,657	115,853	82,658	917,805	22,246	34,120	
161,898	424,244	545,969	35,898	44,040	155,577	82,195	839,767	18,257	37,493	
148,082	414,732	417,076	55,528	36,320	109,608	77,717	835,035	19,544	30,889	
151,203	401,043	389,059	47,385	10,342	141,984	82,072	761,908	19,176	28,790	
129,636	390,259	386,065	39,853	12,000	150,528	78,047	613,402	13,890	46,584	
108,469	369,708	362,200	47,454	18,018	89,968	68,931	558,948	15,182	34,835	
114,322	441,876	359,746	31,824	24,998	109,737	73,396	473,612	13,656	40,847	
103,862	433,768	362,375	69,373	43,015	131,188	89,500	491,778	13,422	42,272	

STATISTICS OF ONTARIO COUNTY

Showing abstract statement of Receipts, Disbursements, Assets and Liabilities

County Municipalities.	Disbursements, 1909.—Concluded.		Assets on December 31st, 1909.				
	Miscellaneous.	Total disbursements.	Cash in treasury.	Rates due from local municipalities.	Sinking Fund investments and deposits.	Other investments and special deposits.	Land, buildings, furniture, etc.
	$	$	$	$	$	$	$
1. Brant	875	37,023	14,537	944	.....	.....	110,000
2. Bruce	3,332	139,880	8,674	.....	.....	.....	80,000
3. Carleton	1,326	188,373	.....	22,613	28,399	.....	310,000
4. Dufferin	639	38,929	2,895	1,803	.....	.....	40,000
5. Elgin	593	146,697	1,844	32,690	.....	.....	182,500
6. Essex	2,314	84,203	.....	28,137	.....	.....	111,000
7. Frontenac	436	143,093	463	37,208	.....	2,000	125,000
8. Grey	2,349	73,776	.....	2,902	11,052	36,627	123,945
9. Haldimand	470	69,339	723	2,964	.....	.....	65,000
10. Haliburton	52	10,833	238	2,477	.....	.....	.....
11. Halton	1,011	53,860	3,400	.....	.....	.....	43,500
12. Hastings	961	201,232	14	61,074	.....	.....	135,500
13. Huron	2,322	135,854	17,509	7,727	66,328	.....	112,000
14. Kent	2,024	103,457	873	23,095	.....	.....	213,680
15. Lambton	1,773	95,293	24,978	16,605	.....	.....	82,000
16. Lanark	1,955	89,405	4,592	.....	.....	3,538	97,721
17. Leeds and Grenville	2,221	65,651	14,204	.....	11,652	.....	82,000
18. Lennox and Addington	393	87,938	7,075	16,792	.....	536	59,500
19. Lincoln	1,138	114,384	1,094	11,165	.....	.....	143,000
20. Middlesex	1,691	248,544	37,457	73,594	162,989	20,375	167,000
21. Norfolk	460	46,267	.....	1,223	.....	.....	59,000
22. Northumberland & Dur.	1,405	82,357	27,312	6,152	11,628	.....	134,700
23. Ontario	1,815	187,136	30,740	2,739	.....	.....	78,000
24. Oxford	1,707	178,953	6	23,209	.....	.....	209,308
25. Peel	1,461	99,171	9,918	.....	.....	.....	81,036
26. Perth	1,306	139,772	9,440	1,159	33,233	.....	125,000
27. Peterborough	930	66,527	1,399	7,923	19,263	.....	127,795
28. Prescott and Russell	550	55,424	.....	26,109	.....	.....	44,173
29. Prince Edward	.....	84,299	300	.....	.....	.....	89,368
30. Renfrew	2,974	51,127	7,120	16,065	.....	.....	57,000
31. Simcoe	2,338	211,746	27,834	55,066	.....	300	142,500
32. Stormont, Dun. & Glen.	968	73,648	11,003	12,384	.....	.....	61,000
33. Victoria	2,466	113,931	2,227	.....	8,740	800	123,440
34. Waterloo	1,178	130,769	100	.....	.....	.....	90,000
35. Welland	544	40,320	8,884	2,212	.....	.....	94,593
36. Wellington	2,802	162,013	3,479	6,662	.....	.....	80,000
37. Wentworth	668	105,042	.....	27,226	.....	90	*147,152
38. York	1,431	151,392	332	40,832	.....	.....	141,700
Totals:							
1909	52,878	4,107,658	280,664	570,751	353,284	64,266	4,169,111
1908	52,599	4,389,811	211,716	586,376	297,995	66,814	4,177,315
1907	53,185	3,685,561	158,417	550,244	318,997	85,929	4,137,470
1906	55,013	3,283,954	237,781	438,060	265,585	83,130	4,091,700
1905	48,882	2,883,596	231,836	579,976	275,864	79,410	3,787,982
1904	47,217	2,956,737	222,494	579,103	278,649	45,686	3,582,853
1903	44,274	2,603,001	292,195	527,890	254,663	74,804	3,547,297
1902	41,642	2,299,022	244,271	482,437	220,645	72,176	3,518,663
1901	47,042	2,185,025	190,104	610,246	245,972	38,100	3,296,654
1900	52,377	2,279,536	192,995	489,635	257,895	47,115	3,267,078

* Omitting $200,000, value of roads, formerly included.

MUNICIPALITIES FOR THE YEAR 1909.—*Continued.*

of the County Municipalities for the year ending December 31st, 1909.—*Continued.*

Assets, 1909.—Concluded.		Liabilities on December 31, 1909.							
Miscellaneous.	Total assets.	School grants unpaid.	Railway debentures outstanding (principal).	All other debentures outstanding (principal).	Loans for current expenses and interest due on same.	Local municipalities for non-resident taxes.	Miscellaneous.	Total liabilities.	No.
$	$	$	$	$	$	$	$	$	
5,799	131,280	.....	.....	12,887	.....	.....	159	13,046	1
47,644	136,318	1,057	.....	55,528	.....	.....	4,711	61,296	2
5,831	366,843	.....	.....	93,465	28,316	1,206	1,350	124,337	3
654	45,352	1,300	.....	.....	.....	233	1,199	2,732	4
13,610	230,644	1,991	.....	51,992	47,000	351	6,715	108,049	5
5,106	144,243	.....	.....	37,994	12,583	1,195	2,314	54,086	6
9,157	173,828	.....	.....	55,117	55,293	.....	323	110,733	7
492	175,018	1,276	.....	27,000	.....	393	*120,058	148,727	8
†3,996	72,683	5,278	.....	.....	12,000	.....	1,344	18,622	9
.....	2,715	137	.....	.....	800	26	574	1,537	10
‡2,689	49,589	.....	.....	.....	9,700	.....	.....	9,700	11
1,300	197,888	.....	.....	89,843	54,259	.....	657	144,759	12
.....	203,564	.....	.....	113,000	.....	685	.....	113,685	13
6,715	244,363	728	.....	17,999	38,775	589	2,307	60,398	14
.....	123,583	465	.....	6,172	20,000	764	.....	27,401	15
7,916	113,767	.....	.....	85,300	.....	.....	.....	85,300	16
1,153	109,009	3,394	.....	29,669	.....	.....	259	33,322	17
.....	83,903	.....	.....	66,300	.....	.....	.....	66,300	18
2,800	158,059	.....	.....	4,000	20,000	469	1,108	25,577	19
16,225	477,640	.....	.....	486,260	68,000	.....	6,056	560,316	20
.....	60,223	.....	.....	.....	2,200	.....	.....	2,200	21
651	180,443	432	.....	96,661	.....	293	.....	97,386	22
311	111,790	.....	.....	14,705	39,302	.....	293	54,300	23
35,320	267,843	152	.....	217,738	18,586	308	3,771	240,555	24
1,499	92,453	.....	.....	96,363	.....	.....	.....	96,363	25
12,053	180,885	158	122,545	.....	.....	.....	4,549	127,252	26
7,646	164,026	980	.....	99,597	15,191	798	3,889	120,455	27
31,197	101,479	.....	.....	54,086	16,129	.....	122	70,337	28
17,646	107,314	71	.....	96,030	4,404	.....	148	100,653	29
2,930	83,115	105	.....	42,455	4,000	355	1,514	48,429	30
24,268	249,968	.....	.....	105,081	95,000	.....	10,273	210,354	31
28,726	113,113	.....	.....	21,879	9,307	.....	.....	31,186	32
11,445	146,652	.....	.....	60,000	3,740	107	7,175	71,022	33
2,244	92,344	.....	.....	18,584	4,488	.....	.....	23,072	34
34,006	139,695	.....	.....	.....	.....	.....	.....	.....	35
12,769	102,910	4,868	.....	.....	9,000	249	11,974	26,091	36
19,556	194,024	.....	.....	84,682	50,968	.....	3,804	139,454	37
9,735	192,599	12,375	.....	76,335	31,360	437	6,956	127,463	38
383,089	5,821,165	34,767	122,545	2,316,722	670,401	8,458	203,602	3,356,495	
343,769	5,683,985	26,523	138,000	2,180,527	585,759	11,113	244,311	3,186,233	
277,462	5,528,519	25,565	155,000	1,958,140	560,497	12,073	189,425	2,900,700	
248,577	5,364,833	13,052	170,000	1,892,221	392,196	8,913	113,936	2,590,318	
212,175	5,167,243	8,351	199,400	1,795,798	448,335	8,567	101,847	2,562,298	
150,276	4,859,061	12,500	199,400	1,767,658	460,496	5,867	126,651	2,572,572	
105,769	4,802,618	11,453	212,900	1,671,109	385,307	6,537	99,347	2,386,653	
96,038	4,634,230	12,304	237,000	1,492,392	291,942	20,192	101,113	2,154,943	
138,035	4,519,111	9,854	237,000	1,433,293	306,713	‖7,308	54,675	2,048,843	
142,918	4,397,636	7,657	258,500	1,459,491	300,807	11,295	66,342	2,104,092	

* Including $120,000, debentures of minor municipalities, guaranteed by county.
† Including $2,821, advance from general county funds to House of Refuge.
‡ Advance from general county funds for House of Refuge, pending sale of debentures.
‖ Including $25,787, advances to minor municipalities for roads, etc.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values,		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
ALGOMA:		Acres.	$	$	$	$	$
Day, etc. .....Tp.	211	15,049	62,031	26,115	85,646	950	.....
Hilton..... "	400	27,002	64,326	47,010	103,776	1,820	.....
Jocelyn..... "	401	28,684	82,685	13,015	90,850	.....	.....
Johnson, etc. ..... "	1,043	39,484	156,690	68,260	216,760	2,120	100
Korah ..... "	718	31,153	356,915	52,215	401,890	.....	.....
Laird ..... "	495	19,773	111,702	21,625	127,377	250	.....
Macdonald, etc..... "	700	28,365	119,395	15,513	132,393	705	.....
Plummer Add'nl... "	200	17,262	85,145	24,972	108,792	.....	.....
Prince ..... "	177	21,232	74,830	15,415	89,625	.....	.....
St. Joseph ..... "	1,036	28,566	119,121	65,620	175,091	2,675	.....
Tarentorus, etc..... "	504	21,615	323,526	28,490	350,391	.....	.....
Thessalon ..... "	575	21,702	139,360	23,562	160,992	900	.....
Thompson ..... "	210	12,999	28,665	9,485	35,650	650	.....
Totals ... 1910	6,670	312,886	1,724,391	411,297	2,079,233	10,070	100
Totals ... 1909	6,765	307,070	1,617,676	387,467	1,947,083	10,300	200
Blind River.....Tn,	2,080	1,099	111,904	338,400	422,204	63,486	5,000
Bruce Mines ..... "	726	747	82,066	120,930	185,397	9,559	.....
Sault Ste. Marie... "	9,045	3,100	3,172,065	3,378,950	5,966,045	367,050	189,679
Steelton ..... "	3,178	1,800	800,666	632,575	1,386,281	4,762	20,900
Thessalon ..... "	1,850	507	144,923	374,125	461,423	71,817	1,400
Totals.... 1910	16,879	7,253	4,311,624	4,844,980	8,421,350	516,674	216,979
Totals.... 1909	16,294	5,403	3,496,833	4,325,239	7,220,409	428,484	204,175
BRANT:							
Brantford .....Tp.	5,884	71,546	2,783,246	1,699,865	4,416,011	67,880	17,405
Burford ..... "	3,987	66,601	1,723,888	643,660	2,309,608	15,910	3,800
Dumfries, S..... "	2,311	46,559	1,654,992	874,376	2,472,018	41,570	5,400
Oakland ..... "	756	10,610	296,238	163,960	452,958	6,280	3,068
Onondaga..... "	972	20,298	624,775	171,205	769,580	1,480	1,250
Totals.... 1910	13,910	215,614	7,083,139	3,553,066	10,420,175	133,120	30,923
Totals.... 1909	14,266	215,918	7,075,262	3,463,673	10,332,653	139,134	35,639
Paris .....Tn, 1910	3,867	760	273,405	1,247,738	1,295,223	205,075	81,689
Paris .....Tn, 1909	3,848	760	272,553	1,110,113	1,206,646	190,865	87,072
*Brantford, City, 1910	21,964	2,957	3,871,985	8,244,350	10,197,940	1,562,450	331,520
*Brantford, City, 1909	20,711	2,957	3,824,345	7,921,710	9,892,235	1,357,600	312,305
BRUCE:							
Albemarle .....Tp.	1,103	57,787	266,805	125,870	376,650	4,065	.....
Amabel..... "	3,559	65,090	609,876	183,777	788,123	3,890	.....
Arran ..... "	1,984	54,084	1,072,231	447,029	1,490,700	1,610	.....
Brant ..... "	3,145	73,853	2,006,850	529,090	2,492,640	11,605	.....
Bruce ..... "	2,332	67,380	1,441,367	410,400	1,826,267	3,850	.....

* Municipalities so marked in this table are separated from the county for county purposes.

EXEMPTIONS AND TAXATION.

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed.					Municipalities.
			Municipal.	School.	Total.	Total per head.	Mills on $	
$	$	$	$	$	$	$ c.		ALGOMA:
86,596	.....	2,500	487	849	1,336	6 33	15.4	Day, etc.
105,596	.....	7,560	1,824	1,232	3,056	7 64	28.9	Hilton.
90,850	.....	4,850	933	1,468	2,401	5 99	26.4	Jocelyn.
218,980	280	8,190	2,952	2,423	5,375	5 15	24.5	Johnson, etc.
401,890	.....	7,240	4,617	1,449	6,066	8 45	15.1	Korah.
127,627	.....	5,950	888	1,252	2,140	4 32	16.8	Laird.
133,098	.....	2,515	1,616	1,725	3,341	4 77	25.1	Macdonald, etc.
108,792	.....	1,325	1,054	913	1,967	9 84	18.1	Plummer Addn'l.
89,625	.....	620	1,914	386	2,300	12 99	25.7	Prince.
177,766	.....	9,650	2,281	2,677	4,958	4 79	27.9	St. Joseph.
350,391	.....	1,625	4,289	2,102	6,391	12 68	18.2	Tarentorus, etc.
161,892	8,650	1,930	1,420	1,521	2,941	5 11	18.2	Thessalon.
36,300	.....	2,500	574	58	632	3 01	17.4	Thompson.
2,089,403	8,930	56,455	24,849	18,055	42,904	6 43	20.5	Totals.
1,957,583	4,660	58,060	19,967	19,063	39,030	5 77	19.9	
490,690	.....	28,100	7,923	6,727	14,650	7 04	29.9	Blind River.
194,956	.....	17,599	1,856	2,144	4,000	5 51	20.5	Bruce Mines.
6,522,774	.....	584,970	70,871	40,060	‡110,931	12 26	17.0	Sault Ste. Marie.
1,411,943	.....	46,960	15,871	10,353	**26,224	8 25	18.5	Steelton.
534,640	100,160	57,625	6,734	7,084	13,818	7 47	25.8	Thessalon.
9,155,003	100,160	735,254	103,255	66,368	169,623	10 05	18.5	Totals.
7,853,068	98,400	601,663	80,482	79,800	160,282	9 84	20.5	
								BRANT:
4,501,296	.....	67,100	26,728	15,675	42,403	7 21	9.4	Brantford.
2,329,318	.....	57,940	22,735	10,660	33,395	8 38	14.3	Burford.
2,518,988	3,235	57,350	9,512	9,501	19,013	8 23	7.5	Dumfries, S.
462,306	.....	7,240	2,365	2,069	4,434	5 87	9.6	Oakland.
772,310	.....	26,400	6,153	1,508	7,661	7 88	9.9	Onondaga.
10,584,218	3,235	216,030	67,493	39,413	106,906	7 69	10.1	Totals.
10,507,426	3,235	206,282	56,861	40,304	97,165	6 82	9.2	
1,581,987	189,598	225,920	28,956	12,501	41,457	10 72	26.2	Paris.
1,484,583	184,873	176,020	30,128	10,761	40,889	10 63	27.5	
11,891,910	315,550	1,918,395	220,810	81,942	302,752	13 78	25.5	*Brantford.
11,562,140	303,670	1,853,820	208,525	69,348	277,873	13 42	24.0	
								BRUCE:
380,715	.....	16,025	4,430	2,699	7,129	6 46	18.7	Albemarle.
792,013	.....	5,530	6,645	7,480	14,125	3 97	17.8	Amabel.
1,492,310	.....	28,560	8,509	6,472	14,981	7 55	10.0	Arran.
2,503,645	.....	43,300	11,130	8,515	19,645	6 25	7.8	Brant.
1,830,097	.....	25,500	10,034	7,331	17,365	7 45	9.5	Bruce.

‡ Lake Superior Power Co. pays $7,500 in lieu of taxes.

** Lake Superior Power Co. pays $5,000 in lieu of taxes.

NOTE.—The property assessed for schools only is included in the total assessment in previous column. The item of municipal taxes includes, beside the general rate, the county rates and local improvements.

POPULATION, AREA, ASSESSMENT,

Municipality.	Assessed Population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
BRUCE.—Con.		Acres.	$	$	$	$	$
Carrick .....Tp.	3,959	59,431	1,888,170	882,425	2,735,095	37,635	1,900
Culross ..... "	2,356	56,717	1,374,715	383,658	1,744,646	3,050	.....
Eastnor ..... "	1,509	55,533	412,263	190,425	582,638	9,380	.....
Elderslie..... "	1,844	53,326	1,496,675	388,800	1,866,675	2,800	.....
Greenock .... "	2,396	63,641	1,323,102	486,705	1,777,807	14,355	5,000
Huron..... "	2,883	58,094	1,834,455	770,378	2,561,583	17,650	4,227
Kincardine... "	2,301	59,036	1,438,400	435,725	1,827,425	2,225	.....
Kinloss ..... "	1,690	46,123	1,178,832	351,340	1,513,552	4,700	4,300
Lindsay ..... "	690	66,762	125,710	20,070	140,680	1,000	.....
St. Edmunds.. "	363	60,055	53,171	28,515	79,856	2,194	.....
Saugeen ..... "	1,308	36,764	710,364	302,435	1,003,599	1,250	.....
Totals.. 1910	33,422	933,676	17,232,986	5,936,642	22,807,936	120,639	15,427
Totals.. 1909	34,129	925,197	17,285,200	5,853,872	22,796,202	121,460	8,795
Hepworth ....Vill.	350	718	15,725	50,960	58,085	7,685	.....
Lucknow ..... "	1,077	500	54,152	301,510	284,762	42,656	6,304
Paisley ..... "	821	500	50,350	261,640	289,475	29,930	11,319
Port Elgin.... "	1,232	600	75,330	354,470	382,450	52,663	20,760
Tara ..... "	549	500	41,965	168,725	193,190	19,284	900
Teeswater.... "	802	474	57,475	213,900	239,050	25,550	2,262
Tiverton ..... "	362	420	25,795	79,070	82,415	8,208	2,700
Chesley .....Tn.	2,017	583	192,225	549,600	654,825	78,300	11,200
Kincardine ... "	2,772	1,900	191,645	700,605	653,159	73,126	7,800
Southampton . "	1,700	1,653	76,568	382,275	401,393	45,568	12,852
Walkerton.... "	3,090	1,350	197,660	773,305	692,265	95,760	17,550
Wiarton ..... "	2,100	756	194,995	499,240	626,235	76,092	8,980
Totals.. 1910	16,872	9,954	1,173,885	4,335,300	4,557,295	554,822	102,627
Totals.. 1909	17,390	10,002	1,187,001	4,218,315	4,486,451	520,474	100,212
CARLETON:—							
Fitzroy .....Tp.	2,159	60,183	1,222,940	221,745	1,419,160	8,350	.....
Gloucester.... "	5,793	83,330	1,243,673	534,680	1,748,203	7,700	.....
Goulburn .... "	2,138	64,786	1,353,204	582,095	1,879,449	9,175	1,400
Gower N..... "	1,718	32,918	761,710	285,600	1,030,710	11,650	3,860
Huntley ..... "	1,979	62,443	969,723	272,747	1,199,095	7,395	1,650
March ..... "	916	28,070	707,085	126,817	810,077	1,140	.....
Marlborough.. "	1,291	57,027	425,560	166,350	576,420	2,850	280
Nepean ..... "	4,517	56,872	2,096,728	997,450	2,871,278	13,700	3,950
Osgoode ..... "	3,949	90,901	1,562,165	576,385	2,089,750	10,180	.....
Torbolton .... "	747	25,419	146,000	41,825	173,825	.....	.....
Totals.. 1910	25,207	561,949	10,488,788	3,805,694	13,797,967	72,140	11,140
Totals.. 1909	25,599	563,847	9,825,287	3,499,718	12,806,835	72,092	14,157
Eastview ....Vill.	2,428	669	266,435	299,925	517,610	5,900	.....
Richmond .... "	419	1,456	33,650	59,800	73,450	5,950	400
Totals .. 1910	2,847	2,125	300,085	359,725	591,060	11,850	400
Totals .. 1909	2,523	2,174	232,007	317,775	481,032	11,600	300
Ottawa City 1910	86,106	5,089	23,091,720	44,078,210	46,460,530	5,031,433	2,569,212
Ottawa City 1909	83,360	5,119	21,483,295	40,648,295	42,404,635	4,773,797	3,329,773

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $	Municipalities.
$	$	$	$	$	$	$ c.		BRUCE.—*Con.*
2,774,630	.....	35,500	10,447	10,733	21,180	5 35	7.6	Carrick.
1,747,696	.....	13,727	7,566	7,042	14,608	6 20	8.4	Culross.
592,018	.....	20,050	4,531	3,970	8,501	5 63	14.4	Eastnor.
1,869,475	.....	18,800	8,042	7,751	15,793	8 56	8.4	Elderslie.
1,797,162	.....	32,000	10,846	6,894	17,740	7 40	9.9	Greenock.
2,583,460	.....	43,250	11,896	9,155	21,051	7 30	8.1	Huron.
1,829,650	.....	46,700	10,097	9,380	19,477	8 46	10.6	Kincardine.
1,522,552	.....	16,620	6,433	5,706	12,139	7 18	8.0	Kinloss.
141,680	.....	5,100	1,858	1,418	3,276	4 75	23.1	Lindsay.
82,050	.....	1,830	1,295	686	1,981	5 46	24.1	St. Edmunds.
1,004,849	.....	9,200	6,668	3,445	10,113	7 73	10.1	Saugeen.
22,944,002	.....	361,692	120,427	98,677	219,104	6 56	9.5	Totals.
22,926,457	3,150	342,870	119,518	94,398	213,916	6 27	9.3	
65,770	500	8,600	839	852	1,691	4 83	25.7	Hepworth.
333,722	.....	70,900	6,140	2,870	9,010	8 37	27.0	Lucknow.
330,724	.....	22,515	4,896	1,984	6,880	8 38	20.8	Paisley.
455,873	19,680	47,350	9,430	3,550	12,980	10 54	28.5	Port Elgin.
213,374	1,500	17,500	2,726	1,500	4,226	7 70	19.8	Tara.
266,862	.....	32,325	3,207	2,230	5,437	6 78	20.4	Teeswater.
93,323	.....	22,450	822	939	1,761	4 86	18.9	Tiverton.
744,325	37,600	87,000	9,426	6,773	16,199	8 03	21.8	Chesley.
734,076	54,040	239,100	11,553	8,809	20,362	7 35	27.7	Kincardine.
459,813	74,450	57,450	6,993	4,960	11,953	7 03	26.0	Southampton
805,575	60,800	278,700	15,216	7,429	22,645	7 33	28.1	Walkerton.
711,307	4,000	68,000	16,411	7,043	23,454	11 16	33.0	Wiarton.
5,214,744	252,570	951,890	87,659	48,939	136,598	8 10	26.2	Totals.
5,107,137	248,370	918,865	85,097	46,577	131,674	7 57	25.8	
								CARLETON:
1,427,510	.....	25,525	7,889	6,523	14,412	6 68	10.1	Fitzroy.
1,755,903	.....	30,150	18,483	15,981	34,464	5 95	19.6	Gloucester.
1,890,024	.....	55,850	7,749	6,650	14,399	6 73	7.6	Goulburn.
1,046,220	.....	16,600	6,671	5,631	12,302	7 16	11.8	Gower N.
1,208,140	.....	43,375	7,919	6,435	14,354	7 25	11.9	Huntley.
811,217	.....	23,825	3,306	2,669	5,975	6 52	7.4	March.
579,550	.....	15,490	4,290	4,607	8,897	6 89	15.4	Marlborough.
2,888,928	.....	222,900	17,182	15,076	32,258	7 14	11.2	Nepean.
2,099,930	.....	48,800	27,437	13,985	41,422	10 49	19.7	Osgoode.
173,825	.....	14,000	1,699	2,594	4,293	5 75	24.7	Torbolton.
13,881,247	.....	496,515	102,625	80,151	182,776	7 25	13.2	Totals.
12,893,084	.....	518,170	96,161	72,500	168,661	6 59	13.1	
523,510	.....	48,750	3,842	3,441	7,283	3 00	13.9	Eastview.
79,800	.....	20,000	767	1,038	1,805	4 31	22.6	Richmond.
603,310	.....	68,750	4,609	4,479	9,088	3 19	15.1	Totals.
492,932	.....	68,750	4,171	2,584	6,755	2 68	13.7	
54,061,175	.....	20,709,400	952,170	459,959	1,412,129	16 40	26.1	*Ottawa City
50,508,205	.....	19,726,955	884 896	434,349	1,319,245	15 83	26.1	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
DUFFERIN:—		Acres.	$	$	$	$	$
Amaranth .....Tp.	2,056	63,400	1,370,610	517,260	1,871,370	760	.....
Garafraxa, E..... "	1,568	40,865	941,993	220,050	1,141,893	500	.....
Luther, E..... "	1,334	38,490	825,268	361,576	1,174,719	1,600	.....
Melancthon ..... "	2,884	74,596	1,339,017	465,125	1,766,742	6,450	.....
Mono ..... "	2,577	69,119	1,794,500	493,400	2,257,950	3,500	.....
Mulmur ..... "	2,659	69,815	1,234,010	252,915	1,469,075	4,550	300
Totals.... 1910	13,078	356,285	7,505,398	2,310,326	9,681,749	17,360	300
Totals.... 1909	14,094	356,389	7,495,190	2,299,962	9,666,427	21,575	400
Grand Valley ...Vill.	759	262	69,830	168,505	220,835	22,450	3,253
Shelburne ..... "	1,150	600	107,210	330,865	382,475	40,622	9,875
Orangeville.....Tn.	2,351	1,732	254,680	663,590	856,470	92,719	5,896
Totals.... 1910	4,260	2,594	431,720	1,162,960	1,459,780	155,791	19,024
Totals.... 1909	4,458	2,373	433,210	1,186,053	1,478,163	160,959	19,634
DUNDAS:							
Matilda .....Tp.	3,436	62,562	1,048,575	357,215	1,384,890	8,450	4,825
Mountain ..... "	2,649	57,611	1,269,620	370,375	1,563,495	10,760	3,028
Williamsburg.... "	3,342	60,633	1,013,496	501,669	1,487,240	11,210	5,500
Winchester ..... "	3,071	57,017	1,030,963	438,358	1,455,121	8,900	.....
Totals.... 1910	12,498	237,823	4,362,654	1,667,617	5,890,746	39,320	13,353
Totals.... 1909	12,334	237,500	4,428,012	1,733,465	5,984,327	43,681	16,472
Chesterville ....Vill.	891	500	51,610	175,325	193,985	17,803	2,390
Iroquois..... "	856	1,160	101,425	295,150	307,075	21,185	8,361
Morrisburg ..... "	1,627	1,400	146,675	469,800	578,175	62,595	50,720
Winchester ..... "	1,127	500	99,650	303,600	362,750	30,445	11,036
Totals.... 1910	4,501	3,560	399,360	1,243,875	1,441,985	132,028	72,507
Totals.... 1909	4,605	3,476	402,720	1,176,875	1,372,345	123,091	70,242
DURHAM:							
Cartwright .....Tp.	1,522	37,841	626,048	252,605	858,053	7,200	600
Cavan ..... "	2,217	61,377	1,154,675	452,500	1,569,375	1,925	.....
Clarke..... "	3,165	68,706	1,338,623	716,775	2,010,198	13,555	2,195
Darlington..... "	3,488	68,717	1,661,597	752,680	2,366,938	7,800	3,915
Hope ..... "	2,778	61,856	1,518,355	786,975	2,151,730	1,900	5,350
Manvers..... "	2,651	69,752	564,050	354,539	888,974	6,480	1,950
Totals.... 1910	15,821	368,249	6,863,348	3,316,074	9,845,268	38,860	14,010
Totals.... 1909	15,702	371,324	6,905,493	3,166,534	9,872,188	37,085	13,807
Millbrook .....Vill.	800	423	44,510	207,948	232,358	20,973	600
Newcastle ..... "	592	1,929	81,935	146,223	201,558	6,705	3,000
Bowmanville.....Tn.	2,515	3,024	271,895	908,220	1,029,115	103,935	29,271
Port Hope ..... "	4,782	1,082	355,149	1,460,490	1,646,839	223,600	41,423
Totals.... 1910	8,689	6,458	753,489	2,722,881	3,109,870	355,213	74,294
Totals.... 1909	8,897	6,346	749,104	2,697,533	3,080,537	359,716	67,614
ELGIN:							
Aldborough.....Tp.	3,141	75,159	1,577,710	322,761	1,876,871	1,990	150
Bayham ..... "	3,250	56,747	844,892	410,157	1,224,344	12,351	2,875
Dorchester, S..... "	1,525	30,564	1,192,310	527,220	1,709,830	5,750	700

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $.	Municipalities.
$	$	$	$	$	$	$ c.		DUFFERIN:
1,872,130	.....	16,500	8,249	8,033	16,282	7 92	8.7	Amaranth.
1,142,393	.....	20,150	5,515	5,670	11,185	7 13	9.8	Garafraxa, E.
1,176,319	.....	12,125	8,047	5,991	14,038	10 52	11.9	Luther, E.
1,773,192	.....	37,400	9,319	9,475	18,794	6 52	10.6	Melancthon.
2,261,450	.....	29,950	11,201	9,572	20,773	8 06	9.2	Mono.
1,473,925	.....	17,850	8,289	9,299	17,588	6 61	11.9	Mulmur.
9,699,409	.....	133,975	50,620	48,040	98,660	7 54	10.2	Totals.
9,688,402	.....	128,725	46,569	46,092	92,661	6 57	9.6	
246,538	.....	17,500	2,632	2,120	4,752	6 26	19.3	Grand Valley.
432,972	.....	55,600	8,017	4,546	12,563	10 92	29.0	Shelburne.
955,085	22,000	61,800	18,141	9,370	27,511	11 70	28.8	Orangeville.
1,634,595	22,000	134,900	28,790	16,036	44,826	10 52	27.4	Totals.
1,658,756	29,200	141,100	28,098	13,613	41,711	9 36	25.1	
								DUNDAS:
1,398,165	.....	20,900	14,593	10,600	25,193	7 33	18.0	Matilda.
1,577,283	.....	76,500	18,480	11,367	29,847	11 27	18.9	Mountain.
1,503,950	.....	27,925	16,779	8,983	25,762	7 71	17.1	Williamsburg
1,464,021	.....	14,200	22,889	12,403	35,292	11 49	24.1	Winchester.
5,943,419	.....	139,525	72,741	43,353	116,094	9 29	19.5	Totals.
6,044,480	.....	177,150	70,307	38,716	109,023	8 84	18 0	
214,178	.....	32,950	2,653	3,080	5,733	6 43	26.8	Chesterville.
336,621	6,000	89,500	6,528	4,100	10,628	12 42	31.6	Iroquois.
691,490	.....	38,300	13,289	7,478	20,767	12 76	30.0	Morrisburg.
404,231	.....	40,500	6,059	2,991	9,050	8 03	22.4	Winchester.
1,646,520	6,000	201,250	28,529	17,649	46,178	10 26	28.0	Totals.
1,565,678	9,000	207,250	25,649	18,639	44,288	9 62	28.3	
								DURHAM:
865,853	.....	20,600	6,217	4,328	10,545	6 93	12.2	Cartwright.
1,571,300	.....	37,800	11,667	7,762	19,429	8 76	12.4	Cavan.
2,025,948	.....	45,200	10,045	10,534	20,579	6 50	10.2	Clarke.
2,378,653	.....	47,339	12,014	10,786	22,800	6 54	9.6	Darlington.
2,158,980	.....	153,600	14,629	3,434	18,063	6 50	8.4	Hope.
897,404	.....	29,615	7,029	8,034	15,063	5 68	16.8	Manvers.
9,898,138	.....	334,154	61,601	44,878	106,479	6 73	10.8	Totals.
9,923,080	.....	199,839	53,997	50,243	104,240	6 64	10.5	
253,931	.....	20,100	3,637	1,495	5,132	6 42	20.2	Millbrook.
211,263	.....	26,600	2,147	2,101	4,248	7 18	20.1	Newcastle.
1,162,321	54,840	151,000	23,753	8,450	32,203	12 80	27.7	Bowmanville.
1,911,862	158,000	168,800	43,131	11,300	54,431	11 38	28.5	Port Hope.
3,539,377	212,840	366,500	72,668	23,346	96,014	11 05	27.1	Totals.
3,507,867	232,040	366,100	75,578	22,884	98,462	11 07	28.1	
								ELGIN:
1,879,011	.....	23,600	20,504	9,987	30,491	9 71	16,2	Aldborough.
1,239,570	.....	30,705	18,832	9,025	27,857	8 57	22.5	Bayham.
1,716,280	.....	9,700	13,144	6,109	19,253	12 62	11.2	Dorchester, S.....

NOTE.—Assessed values and taxation for 1908 used for Darlington Tp., the returns for 1909 and 1910 not having been received.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed Population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
ELGIN—*Con.*		Acres.	$	$	$	$	$
Dunwich .....Tp.	2,984	69,159	1,939,555	598,095	2,515,450	5,100	1,600
Malahide ..... "	3,258	62,445	1,866,271	746,005	2,579,666	6,300	3,700
Southwold..... "	3,591	72,710	2,384,484	755,395	3,102,429	14,500	.....
Yarmouth ..... "	4,618	69,507	2,534,921	982,345	3,501,716	9,490	1,830
Totals.... 1910	22,367	436,291	12,340,143	4,341,978	16,510,306	55,481	10,855
Totals.... 1909	22,481	435,459	12,395,673	4,291,651	16,522,884	57,565	10,055
Dutton .....Vill.	917	500	88,837	276,540	351,672	28,485	7,745
Port Stanley.... "	690	505	98,640	158,100	242,190	14,530	1,574
Rodney ..... "	741	475	50,295	127,110	162,980	13,465	2,441
Springfield ..... "	468	409	30,885	92,670	111,755	8,885	1,535
Vienna ..... "	343	1,307	32,110	58,275	78,635	4,215	314
West Lorne..... "	897	493	34,686	126,015	147,276	15,460	3,240
Aylmer .....Tn.	2,238	549	236,995	698,555	862,400	97,585	18,000
Totals.... 1910	6,294	4,238	572,448	1,537,265	1,956,908	182,625	34,849
Totals.... 1909	6,357	4,221	498,549	1,518,936	1,848,205	183,493	38,578
*St. Thomas, City.. 1910	14,872	1,800	2,677,725	5,240,085	6,735,110	500,173	121,738
*St. Thomas, City.. 1909	14,578	1,800	2,348,930	5,036,515	6,243,545	468,367	121,760
ESSEX:							
Anderdon .....Tp.	1,843	23,096	700,629	137,490	832,819	900	.....
Colchester, N..... "	1,861	30,096	807,964	105,060	879,024	380	.....
Colchester, S..... "	2,680	34,348	839,735	322,492	1,147,452	10,949	4,500
Gosfield, N. ..... "	1,911	27,997	1,070,490	311,801	1,354,191	900	.....
Gosfield, S. ..... "	2,148	29,822	1,076,835	341,005	1,396,540	3,825	5,650
Maidstone ..... "	2,762	44,440	1,590,170	315,772	1,865,567	5,075	.....
Malden..... "	1,304	21,555	683,891	301,240	971,216	.....	1,200
Mersea ..... "	3,897	59,175	1,826 588	643,975	2,410,313	6,275	.....
Rochester..... "	1,977	32,639	1,312,197	293,170	1,570,417	8,701	350
Sandwich, E. .... "	3,175	18,710	846,043	261,473	1,045,516	22,800	.....
Sandwich, S..... "	1,587	23,507	714,790	166,580	863,435	1,200	.....
Sandwich, W..... "	2,476	22,513	902,838	164,918	1,062,056	8,250	.....
Tilbury, N. ..... "	1,943	27,164	850,875	157,434	982,084	2,775	.....
Tilbury, W.....	1,809	22,627	793,676	203,024	981,600	12,260	14,001
Totals.... 1910	31,373	417,689	14,016,721	3,725,434	17,362,230	84,290	25,701
Totals.... 1909	31,409	418,118	13,657,550	3,651,211	16,947,861	107,507	36,882
Belle River.....Vill.	579	346	31,855	104,150	116,055	15,952	81
Amherstburg ....Tn.	2,556	358	247,227	512,695	654,922	42,987	6,670
Essex ..... "	1,285	700	154,105	389,903	480,923	42,255	4,102
Kingsville ..... "	1,724	444	124,810	425,380	451,740	29,034	1,750
Leamington..... "	2,512	836	249,285	678,987	826,187	68,660	15,191
Sandwich..... "	2,106	2,000	363,420	471,170	669,640	32,250	4,970
Totals.... 1910	10,762	4,684	1,170,702	2,582,285	3,199,467	231,138	32,764
Totals.... 1909	10,760	4,705	1 144,752	2,459,905	3,153,551	234,915	43,437
*Pelee Island, Township.. 1910	652	9,857	195,080	150,255	336,570	5,110	.....
*Pelee Island, Township.. 1909	641	9,854	186,150	148,350	325,940	5,210	.....
*Walkerville, Town.. 1910	3,048	436	885,974	2,586,931	3,278,917	1,460,628	163,896
*Walkerville, Town.. 1909	2,929	437	803,969	2,575,311	3,208,306	1,425,240	153,426
*Windsor, City.. 1910	17,534	2,020	3,999,675	6,012,000	8,569,650	795,525	115,750
*Windsor, City.. 1909	16,142	2,020	3,720,289	5,014,700	8,042,189	713,850	123,500

Assessed values and taxation for 1909 used for Aldborough Tp., the return for 1910 not having been received.

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $	Municipalities.
$	$	$	$	$	$	$ c.		ELGIN.—*Con.*
2,522,150	.....	22,200	19,955	8,871	28,826	9 66	11.4	Dunwich.
2,589,666	.....	32,610	20,970	10,056	31,026	9 52	12.0	Malahide.
3,116,929	.....	37,450	28,749	10,066	38,815	10 81	12.5	Southwold.
3,513,036	15,850	15,550	39,421	14,497	53,918	11 68	15.3	Yarmouth.
16,576,642	15,850	171,815	161,575	68,611	230,186	10 29	13.9	Totals.
16,590,504	15,850	164,440	151,174	61,118	212,292	9 44	12.8	
387,902	.....	13,705	5,006	1,867	6,873	7 50	17.7	Dutton.
258,294	2,500	14,550	3,452	2,525	5,977	8 66	23.1	Port Stanley
178,886	.....	14,425	3,780	1,235	5,015	6 77	28.0	Rodney.
122,175	.....	11,800	2,123	836	2,959	6 32	24.2	Springfield.
83,164	.....	11,750	1,237	998	2,235	6 52	26.9	Vienna.
165,976	.....	13,425	3,360	1,112	4,472	4 99	26.9	West Lorne.
977,985	58,000	73,150	21,891	7,369	29,260	13 07	29.9	Aylmer.
2,174,382	60,500	152,805	40,849	15,942	56,791	9 02	26.1	Totals.
2,070,276	84,100	169,280	40,979	14,665	55,644	8 75	26.9	
7,357,021	198,200	1,182,700	118,474	53,584	172,058	11 57	23.4	*St. Thomas.
6,833,672	201,200	1,141,900	115,749	49,384	165,133	11 33	24.2	
								ESSEX
833,719	.....	5,300	8,291	4,611	12,902	7 00	15.5	Anderdon.
879,404	.....	34,000	15,565	5,255	20,820	11 19	23.7	Colchester, N.
1,162,901	.....	14,775	16,398	9,005	25,403	9 47	21.8	Colchester, S.
1,355,091	32,300	28,100	16,461	6,296	22,757	11 91	16.8	Gosfield, N.
1,406,015	6,000	21,300	13,343	6,811	20,154	9 38	14.3	Gosfield, S.
1,870,642	13,650	40,375	21,264	7,945	29,209	10 58	15.6	Maidstone.
972,416	.....	13,915	8,739	4,103	12,842	9 85	13.2	Malden.
2,416,588	1,450	60,250	32,640	10,998	43,638	11 20	18.1	Mersea.
1,579,468	.....	34,950	14 383	6,154	20,537	10 39	13.0	Rochester.
1,068,316	.....	62,000	16,259	6,050	22,309	7 03	20.9	Sandwich, E.
864,635	.....	17,935	9,591	3,477	13,068	8 23	15.1	Sandwich, S.
1,070,306	21,375	5,700	12,436	6,478	18,914	7 64	17.7	Sandwich, W.
984,859	.....	26,225	10,758	4,397	15,155	7 80	15.4	Tilbury, N.
1,007,861	.....	15,100	10,834	5,366	16,200	8 96	16.1	Tilbury, W.
17,472,221	74,775	379,925	206,962	86,946	293,908	9 37	16.8	Totals.
17,092,250	66,025	360,900	197,081	81,958	279,039	8 88	16.3	
132,088	13,040	19,950	1,460	502	1,962	3 39	14.9	Belle River.
704,579	10,630	105,000	15,929	7,926	23,855	9 33	33.9	Amherstburg.
527,280	20,500	63,085	7,083	6,269	13,352	10 39	25.3	Essex.
482,524	22,000	98,450	10,225	3,619	13,844	8 03	28.7	Kingsville.
910,038	29,520	102,085	9,840	10,378	20,218	8 05	22.2	Leamington
706,860	22,800	164,950	14,642	4,008	18,650	8 86	26.4	Sandwich.
3,463,369	118,490	553,520	59,179	32,702	91,881	8 54	26.5	Totals.
3,431,903	96,485	451,106	55,912	30,684	86,596	8 05	25.2	
341,680	.....	8,765	10,368	2,050	12,418	19 05	36.3	*Pelee Island.
331,150	.....	8,560	12,516	2,153	14,669	22 88	44.3	
4,903,441	3,000	193,988	49,887	12,551	62,438	20 48	12.7	*Walkerville.
4,786,972	.....	170,974	48,215	11,688	59,903	20 45	12.5	
9,480,925	216,550	1,442,025	178,182	82,191	260,373	14 85	27.5	*Windsor.
8,879,539	178,275	692,800	174,398	69,144	243,542	15 09	27.4	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
FRONTENAC:		Acres.	$	$	$	$	$
Barrie .....Tp.	450	25,767	44,846	19,149	61,655	.....	.....
Bedford ..... "	1,207	65,189	192,341	119,490	295,481	1,366	6,692
Clarendon and M. "	745	49,354	49,651	29,490	74,571	1,050	.....
Hinchinbrooke ... "	1,134	65,810	161,440	47,945	205,185	2,750	.....
Howe Island..... "	299	8,002	53,673	33,710	79,433	650	.....
Kennebec ..... "	978	44,966	62,232	45,240	100,372	3,045	.....
Kingston ..... "	2,427	52,167	822,653	427,225	1,211,878	6,525	.....
Loughborough.... "	1,707	50,841	243,045	164,955	401,050	3,800	4,100
Olden ..... "	969	53,239	152,510	80,826	225,491	2,612	.....
Oso..... "	959	42,659	69,697	52,201	114,398	2,298	.....
Palmerston, etc... "	887	56,093	45,264	36,062	76,936	2,020	.....
Pittsburg..... "	1,912	47,481	536,334	272,920	807,454	.....	.....
Portland ..... "	1,957	53,391	612,361	286,895	897,656	4,450	200
Storrington..... "	1,761	55,816	306,203	118,610	420,813	6,510	.....
Wolfe Island..... "	1,558	31,936	468,194	163,389	594,583	3,285	.....
Totals ....{1910	18,950	702,711	3,820,444	1,898,107	5,566,956	40,361	16,992
Totals ....{1909	19,580	702,113	3,884,681	1,842,835	5,595,856	32,772	7,300
Garden Island...Vill.	159	77	12,950	16,050	27,000	10,000	12,500
Portsmouth..... "	676	155	56,845	2,103,582	103,277	7,000	4,918
Totals....{1910	835	232	69,795	2,119,632	130,277	17,000	17,418
Totals....{1909	873	239	72,065	2,119,125	132,040	15,359	19,150
*Kingston City..{1910	18,914	2,300	3,302,707	8,449,477	7,646,154	899,915	361,309
City..{1909	19,193	2,300	3,200,050	7,606,870	7,368,095	873,525	344,255
GLENGARRY:							
Charlottenburg ..Tp.	4,277	81,012	1,500,500	820,670	2,215,520	15,210	400
Kenyon..... "	3,804	77,909	1,103,385	323,151	1,401,636	15,200	400
Lancaster ..... "	3,509	57,430	1,705,887	661,776	2,306,338	10,995	12,275
Lochiel ..... "	4,292	71,506	1,458,453	594,835	2,011,393	12,440	1,750
Totals ...{1910	15,882	287,857	5,768,225	2,400,432	7,934,887	53,845	14,825
Totals ...{1909	16,294	286,862	5,673,718	2,472,969	7,935,412	62,071	14,461
Lancaster .....Vill.	620	130	19,180	137,985	144,565	11,310	469
Maxville ..... "	787	500	58,600	176,295	218,745	13,873	2,150
Alexandria .....Tn.	2,260	400	113,445	435,770	478,965	39,247	3,275
Totals ...{1910	3,667	1,030	191,225	750,050	842,275	64,430	5,894
Totals ...{1909	3,774	1,120	194,235	730,870	828,405	68,134	7,135
GRENVILLE:							
Augusta .....Tp.	3,136	74,656	954,180	391,150	1,282,490	18,045	800
Edwardsburg .... "	3,113	70,135	874,417	334,135	1,188,452	5,600	3,525
Gower, S..... "	726	21,703	234,405	92,010	318,490	.....	.....
Oxford-on-Rideau "	2,351	59,446	607,143	293,736	809,079	2,060	2,075
Wolford ..... "	1,262	46,355	646,229	302,635	923,259	9,110	.....
Totals ...{1910	10,588	272,295	3,316,374	1,413,066	4,521,770	34,815	6,400
Totals ...{1909	10,903	272,223	3,386,925	1,350,001	4,537,546	28,050	6,616

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvemnets only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $.	Municipalities.
$	$	$	$	$	$	$ c.		FRONTENAC:
61,655	.....	2,340	626	867	1,493	3 32	24.2	Barrie.
303,539	.....	16,350	3,572	3,180	6,752	5 59	22.2	Bedford.
75,621	.....	4,570	960	1,500	2,460	3 30	32.5	Clarendon and M.
207,935	.....	4,200	3,278	2,809	6,087	5 37	29 3	Hinchinbrooke.
80,083	.....	7,950	1,253	959	2,212	7 40	27.6	Howe Island.
103,417	.....	7,100	1,329	2,322	3,651	3 73	35.3	Kennebec.
1,218,403	.....	38,000	19,168	7,442	26,610	10 96	21.8	Kingston.
408,950	.....	6,950	7,076	4,759	11,835	6 93	28.9	Loughborough.
228,103	1,280	7,845	2,684	2,420	5,104	5 27	22.4	Olden.
116,696	.....	7,500	2,674	2,041	4,715	4 92	40.4	Oso.
78,956	.....	4,390	1,292	1,369	2,661	3 00	33.7	Palmerston, etc.
807,454	.....	1,800	13,725	6,622	20,347	10 64	25.2	Pittsburg.
902,306	.....	1,600	11,551	5,805	17,356	8 87	19.2	Portland.
427,323	.....	4,000	11,590	4,438	16,028	9 10	37.5	Storrington.
597,868	.....	37,000	7,122	4,954	12,076	7 75	20.2	Wolfe Island.
5,618,309	1,280	151,595	87,900	51,487	139,387	7 36	24.8	Totals.
5,635,928	1,440	131,660	78,638	48,380	127,018	6 49	22.5	
49,500	.....	2,000	742	867	1,609	10 12	32.5	Garden Island.
115,195	2,800	2,057,150	1,920	1,132	3,052	4 51	26.5	Portsmouth.
164,695	2,800	2,059,150	2,662	1,999	4,661	5 58	28.3	Totals.
166,549	2,800	2,059,150	2,701	1,905	4,606	5 28	27.7	
8,907,378	640,730	4,106,030	137,002	47,209	184,211	9 74	20.7	*Kingston
8,585,875	551,455	3,438,825	150,241	43,187	193,428	10 08	22.5	
								GLENGARRY:
2,231,130	.....	105,650	15,764	12,891	28,655	6 70	12.8	Charlottenburg.
1,417,236	.....	24,900	8,913	11,971	20,884	5 49	14.7	Kenyon.
2,329,608	.....	61,325	7,895	9,187	17,082	4 87	7.3	Lancaster.
2,025,583	.....	41,895	8,030	11,811	19,841	4 62	9.8	Lochiel.
8,003,557	.....	233,770	40,602	45,860	86,462	5 44	10.8	Totals.
8,011,944	.....	211,275	41,106	44,347	85,453	5 24	10.7	
156,344	.....	12,600	1,509	1,392	2,901	4 67	18.6	Lancaster.
234,768	.....	16,150	1,711	1,931	3,642	4 63	15.5	Maxville.
521,487	.....	70,250	11,615	4,641	16,256	7 19	31.2	Alexandria.
912,599	.....	99,000	14,835	7,964	22,799	6 22	25.0	Totals.
903,674	.....	96,700	13,281	7,129	20,410	5 41	22.6	
								GRENVILLE:
1,301,335	.....	62,840	10,486	11,336	21,822	6 96	16.8	Augusta.
1,197,577	.....	20,100	9,311	11,356	20,667	6 64	17.3	Edwardsburg.
318,490	.....	7,925	3,246	1,990	5,236	7 21	16.4	Gower, S.
813,214	.....	91,800	6,469	7,072	13,541	5 76	16.7	Oxford-on-Rideau.
932,369	.....	25,005	4,830	5,345	10,175	8 06	10.9	Wolford.
4 562,985	.....	207,670	34,342	37,099	71,441	6 75	15.7	Totals.
4 752,212	.....	199,380	29,703	36,649	66,352	6 09	14.5	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
GRENVILLE.—*Con.*		Acres.	$	$	$	$	$
Cardinal.....Vill.	1,032	450	126,470	246,695	364,565	42,200	8,040
Kemptville..... "	1,337	359	92,350	377,500	396,050	25,625	9,400
Merrickville.... "	928	678	69,510	265,700	284,160	26,395	27,420
Totals.... 1910	3,297	1,487	288,330	889,895	1,044,775	94,220	44,860
1909	3,485	1,486	231,865	896,065	999,480	96,148	44,536
*Prescott, 1910	2,924	1,182	270,831	958,699	982,530	139,657	35,914
Town..... 1909	3,074	1,182	277,005	941,200	971,205	139,051	56,360
GREY							
Artemesia.....Tp.	2,903	68,361	902,819	402,555	1,250,574	17,805	.....
Bentinck ..... "	2,648	74,862	1,115,542	413,098	1,506,365	6,600	.....
Collingwood..... "	3,009	66,287	889,437	514,556	1,379,618	12,600	.....
Derby..... "	1,845	40,250	718,481	359,587	1,049,368	4,591	.....
Egremont ..... "	2,831	72,459	1,489,990	465,735	1,925,025	9,407	2,000
Euphrasia..... "	2,590	71,818	893,485	411,850	1,276,235	2,800	1 400
Glenelg..... "	2,156	67,340	625,530	140,915	748,755	1,725	.....
Holland..... "	2,380	68,779	827,025	488,514	1,298,739	17,200	.....
Keppel..... "	3,150	92,104	555,283	206,205	746,688	30,370	.....
Normanby ..... "	3,340	67,554	1,485,018	581,950	2,046,793	16,800	700
Osprey ..... "	2,705	70,760	774,870	253,545	1,008,320	4,490	.....
Proton..... "	2,554	81,784	1,151,960	395,270	1,497,230	2,950	.....
St. Vincent..... "	2,585	63,527	941,215	469,950	1,367,285	.....	.....
Sarawak..... "	703	10,514	147,165	68,410	204,965	200	.....
Sullivan..... "	2,372	73,528	1,232,714	410,974	1,621,995	3,650	.....
Sydenham ..... "	3,075	75,726	1,290,191	600,550	1,861,541	6,780	300
Totals.... 1910	40,846	1,065,653	15,040,725	6,183,664	20,789,496	137,968	4,400
1909	42,160	1,067,614	14,589,301	6,622,906	20,817,408	139,225	2,900
Chatsworth.....Vill.	345	120	31,125	103,650	117,175	9,225	2,056
Dundalk..... "	740	450	63,476	195,872	229,893	22,776	1,250
Markdale..... "	842	950	97,836	258,350	284,986	34,905	3,246
Neustadt..... "	510	669	33,645	85,550	110,995	16,695	400
Durham.....Tn.	1,526	950	134,815	393,005	488,370	76,350	7,100
Hanover..... "	2,523	520	102,425	387,750	462,175	36,389	7,125
Meaford..... "	2,351	1,500	375,000	877,218	1,092,468	124,549	5,600
Owen Sound.... "	11,870	2,909	2,144,965	3,595,835	4,758,940	556,445	106,953
Thornbury..... "	669	900	95,240	204,145	283,260	28,029	2,300
Totals.... 1910	21,376	8,968	3,078,527	6,101,375	7,828,262	905,363	136,030
1909	21,876	9,562	2,974,572	5,908,986	7,767,498	992,629	129,037
HALDIMAND:							
Canborough.....Tp.	862	21,577	381,925	140,100	511,500	2,408	.....
Cayuga, N ..... "	1,454	32,887	651,956	314,460	941,291	5,075	625
Cayuga, S ..... "	669	13,249	285,250	140,355	411,605	400	.....
Dunn..... "	726	14,821	381,564	75,365	450,839	3,300	.....
Moulton ..... "	1,841	27,288	501,420	164,125	657,195	500	.....
Oneida..... "	1,290	32,607	675,775	380,249	1,044,424	4,350	.....
Rainham..... "	1,776	25,686	492,860	280,960	765,270	5,595	22,332
Seneca..... "	1,659	41,781	851,608	395,397	1,219,068	2,650	2,000
Sherbrooke ..... "	341	4,646	117,011	47,045	161,511	780	.....
Walpole ..... "	3,213	66,550	1,511,828	511,567	1,989,770	8,685	2,250
Totals.... 1910	13,831	281,092	5,851,197	2,449,623	8,152,473	33,743	27,207
1909	14,342	281,068	5,890,198	2,550,939	8,267,412	44,033	9,388

NOTE.—Assessed values and taxation for 1909 used for Holland Tp., the return for 1910 not having been received.

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $.	Municipalities.
$	$	$	$	$	$	$ c.		GRENVILLE.—*Con.*
414,805	60,000	8,600	2,790	2,992	5,782	5 60	13.9	Cardinal.
431,075	.....	73,800	5,708	5,500	11,208	8 38	26.0	Kemptville.
337,975	.....	51,050	4,067	2,704	6,771	7 30	20.0	Merrickville.
1,183,855	60,000	133,450	12,565	11,196	23,761	7 21	20.1	Totals.
1,140,164	60,000	128,450	14,123	10,038	24,161	6 93	21.2	
1,158,101	.....	247,000	19,446	11,196	30,642	10 48	26.5	*Prescott.
1,166,616	.....	247,000	18,597	10,733	29,330	9 54	25.1	
								GREY:
1,268,379	.....	54,800	8,421	12,576	20,997	4 33	16.6	Artemesia.
1,512,965	.....	22,275	7,270	6,696	13,966	5 27	9.2	Bentinck.
1,392,218	.....	24,375	9,930	10,274	20,204	6 71	14.5	Collingwood.
1,053,959	.....	28,700	7,350	3,918	11,268	6 11	10.7	Derby.
1,936,432	.....	30,700	9,798	7,459	17,257	6 10	8.9	Egremont.
1,280,435	.....	29,100	6,564	10,294	16,858	6 51	13.2	Euphrasia.
750,480	.....	17,690	5,926	5,898	11,824	5 48	15.8	Glenelg.
1,315,939	.....	16,800	5,415	6,636	12,051	5 06	9.2	Holland.
777,058	.....	14,800	8,654	8,719	17,373	5 52	22.4	Keppel.
2,064,293	.....	20,175	8,272	8,800	17,072	5 11	8.3	Normanby.
1,012,810	.....	20,095	6,879	8,390	15,269	5 64	15.1	Osprey.
1,500,180	.....	50,000	11,605	9,529	21,134	8 27	14.1	Proton.
1,367,285	.....	43,880	15,627	5,301	20,928	8 10	15.3	St. Vincent.
205,165	.....	10,610	2,102	2,007	4,109	5 84	20.0	Sarawak.
1,625,645	.....	21,693	5,938	8,456	14,394	6 07	8.9	Sullivan.
1,868,621	.....	29,200	11,330	9,164	20,494	6 66	11.0	Sydenham.
20,931,864	.....	434,893	131,081	124,117	255,198	6 25	12.2	Totals.
20,959,533	.....	394,799	116,038	122,903	238,941	5 67	11.4	
128,456	.....	17,600	927	1,053	1,980	5 74	15.4	Chatsworth.
253,919	.....	29,455	4,174	3,427	7,601	10 27	29.9	Dundalk.
323,137	6,700	71,200	6,003	3,448	9,451	11 22	29.2	Markdale.
128,090	.....	8,200	1,423	1,217	2,640	5 18	20.6	Neustadt.
571,820	102,080	39,450	9,973	2,652	12,625	8 27	22.1	Durham.
505,689	10,000	28,000	8,967	5,491	14,458	5 73	28.6	Hanover.
1,222,617	171,395	159,750	18,407	9,781	28,188	11 99	23.1	Meaford.
5,422,338	155,700	981,860	93,518	42,682	136,200	11 47	25.1	Owen Sound.
313,589	.....	16,125	4,582	2,007	6,589	9 85	21.0	Thornbury.
8,869,655	445,875	1,351,640	147,974	71,758	219,732	10 28	24.8	Totals.
8,889,164	514,411	1,116,060	142,610	62,738	205,348	9 39	23.1	
								HALDIMAND:
513,908	.....	10,525	4,276	2,247	6,523	7 57	12.7	Canborough.
946,991	.....	25,125	5,098	4,620	9,718	6 68	10.3	Cayuga, N.
412,005	.....	14,000	1,967	2,072	4,039	6 04	9.8	Cayuga, S.
454,139	.....	6,090	2,395	2,350	4,745	6 54	10.4	Dunn.
657,695	.....	8,350	6,152	3,207	9,359	5 08	14.2	Moulton.
1,048,774	.....	11,600	4,653	5,205	9,858	7 64	9.4	Oneida.
793,197	.....	8,550	4,582	4,267	8,849	4 98	11.2	Rainham.
1,223,718	.....	27,937	10,003	2,105	12,108	7 30	9.9	Seneca.
162,291	.....	2,545	2,539	770	3,309	9 70	20.4	Sherbrooke.
2,000,705	.....	33,625	22,191	12,474	34,665	10 79	17.3	Walpole.
8,213,423	.....	148,347	63,856	39,317	103,173	7 46	12.6	Totals
8,320,833	.....	173,725	58,255	43,941	102,196	7 13	12.3	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
HALDIMAND—*Con.*		Acres.	$	$	$	$	$
Caledonia.....Vill.	850	547	44,455	234,887	247,787	23,504	900
Cayuga ..... "	804	946	63,398	225,334	226,932	14,431	5,250
Hagersville .... "	943	349	102,063	212,640	296,703	22,025	1,600
Jarvis ..... "	615	271	24,608	126,725	121,333	8,780	.....
Dunnville..... Tn.	2,928	938	530,275	877,600	1,280,250	111,275	22,825
Totals.... 1910	6,140	3,051	764,799	1,677,186	2,173,005	180,015	30,575
Totals.... 1909	5,537	2,834	531,577	1,308,836	1,673,713	189,141	18,370
HALIBURTON:							
Anson and Hindon Tp.	240	12,965	22,705	13,550	34,855	1,825	.....
Cardiff ..... "	572	26,736	51,697	10,003	59,630	220	.....
Dysart, etc..... "	1,158	363,606	500,428	107,755	602,183	19,179	.....
Glamorgan..... "	488	24,001	29,074	4,864	31,288	1,100	.....
Lutterworth ..... "	362	24,899	32,290	9,445	38,140	.....	.....
Minden ..... "	1,001	38,291	55,292	40,887	87,904	2,450	700
Monmouth ..... "	656	28,820	68,147	20,972	84,247	1,141	.....
Sherborne, etc.... "	231	13,693	23,321	34,435	54,556	1,980	.....
Snowdon ..... "	655	35,628	58,805	15,310	69,415	400	.....
Stanhope ..... "	513	19,096	29,891	15,448	42,491	870	.....
Totals.... 1910	5,876	587,735	871,650	272,669	1,104,709	29,165	700
Totals.... 1909	5,949	584,171	1,007,172	228,568	1,201,086	18,920	1,441
HALTON:							
Esquesing .....Tp.	3,513	66,403	1,488,234	750,866	2,200,200	41,175	4,780
Nassagaweya .... "	2,068	44,784	946,585	523,980	1,420,565	18,100	3,450
Nelson ..... "	2,622	46,346	1,541,769	597,375	2,118,944	700	500
Trafalgar ..... "	3,431	67,059	2,322,540	468,000	2,740,540	2,880	2,200
Totals.... 1910	11,634	224,592	6,299,128	2,340,221	8,480,249	62,855	10,930
Totals.... 1909	11,741	224,259	6,430,551	2,234,514	8,517,905	63,439	14,620
Acton .....Vill.	1,673	425	93,390	342,275	389,815	37,690	1,300
Burlington..... "	1,653	553	205,940	445,410	601,450	20,314	1,300
Georgetown..... "	1,629	1,076	113,175	374,250	411,725	39,948	8,067
Milton..... Tn.	1,673	400	102,215	482,973	447,848	47,539	6,659
Oakville..... "	2,202	1,303	420,100	665,083	879,880	55,770	15,320
Totals.... 1910	8,830	3,757	934,820	2,309,991	2,730,718	201,261	32,646
Totals.... 1909	8,464	3,779	846,486	2,205,199	2,541,995	205,135	34,876
HASTINGS:							
Bangor, W., & McC. Tp.	1,085	41,103	40,271	30,640	66,911	1,200	.....
Carlow ..... "	673	27,338	39,714	34,922	71,961	600	.....
Dungannon ..... "	680	39,840	61,912	33,434	86,996	717	.....
Elzevir and G.... "	1,248	66,151	171,891	114,270	272,461	1,006	.....
Faraday ..... "	880	51,824	63,085	20,190	80,600	.....	.....
Hungerford ..... "	3,415	89,405	1,290,149	345,950	1,602,324	45,000	.....
Huntingdon ..... "	2,017	54,020	639,740	301,167	909,507	.....	2,000
Limerick ..... "	439	45,140	55,850	11,925	63,885	.....	.....
Madoc ..... "	2,453	65,359	663,510	235,850	845,910	4,250	600
Marmora and Lake "	1,618	109,611	483,350	135,660	608,510	1,595	9,840
Mayo ..... "	504	21,320	23,268	16,083	36,981	400	.....
Monteagle and H. "	2,130	70,007	63,311	38,675	88,986	2,050	.....
Rawdon ..... "	2,805	65,933	1,003,786	243,032	1,243,668	3,060	1,825

* Jarvis incorporated January 1st, 1910.

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvement only.	Taxes imposed.					Municipalities.
			Municipal.	School.	Total.	Total per head.	Mills on $.	
$	$	$	$	$	$	$ c.		HALDIMAND—*Con.*
272,191	.....	31,555	3,783	3,200	6,983	8 22	25.7	Caledonia.
246,613	.....	61,800	2,900	3,150	6,050	7 52	24.5	Cayuga.
320,328	.....	18,000	4,686	3,363	8,049	8 54	25.1	Hagersville.
130,113	675	30,000	1,702	1,105	2,807	4 56	21.6	Jarvis.
1,414,350	53,000	127,625	19,921	7,516	27,437	9 37	19.4	Dunnville.
2,383,595	53,675	268,980	32,992	18,334	51,326	8 36	21.5	Totals.
1,881,224	27,634	166,700	24,039	15,205	39,244	7 09	20.9	
								HALIBURTON:
36,680	.....	1,400	493	583	1,076	4 48	29.3	Anson and Hindon.
59,850	.....	2,070	1,081	1,415	2,496	4 36	41.7	Cardiff.
621,362	.....	6,000	7,612	2,905	10,517	9 08	16.9	Dysart, etc.
32,388	.....	2,650	682	895	1,577	3 23	48.7	Glamorgan.
38,140	.....	3,595	511	1,143	1,654	4 57	43.4	Lutterworth.
91,054	.....	8,275	1,255	2,056	3,311	3 31	36.4	Minden.
85,388	1,685	4,872	1,750	655	2,405	3 67	28.2	Monmouth.
56,536	.....	3,200	982	567	1,549	6 71	27.4	Sherborne, etc.
69,815	.....	4,700	1,020	1,591	2,611	3 99	37.4	Snowdon.
43,361	.....	2,848	654	805	1,459	2,84	33.6	Stanhope.
1,134,574	1,685	39,610	16,040	12,615	28,655	4 88	25.3	Totals.
1,221,447	125	34,654	13,777	13,500	27,277	4 59	22.3	
								HALTON:
2,246,155	.....	38,900	14,239	8,129	22,368	6 37	10.0	Esquesing.
1,442,115	.....	50,000	5,950	4,575	10,525	5 09	7.3	Nassagaweya.
2,120,144	.....	20,200	12,143	6,371	18,514	7 06	8.7	Nelson.
2,745,620	.....	50,000	20,227	8,655	28,882	8 42	10.5	Trafalgar.
8,554,034	.....	159,100	52,559	27,730	80,289	6 90	9.4	Totals.
8,595,964	.....	147,160	58,364	22,811	81,175	6 91	9.4	
428,805	.....	45,850	5,625	3,500	9,125	5 45	21.3	Acton.
623,064	.....	49,900	11,715	4,000	15,715	9 51	25.2	Burlington.
459,740	10,000	75,700	6,702	5,500	12,202	7 49	26.5	Georgetown.
502,046	9,600	137,340	10,251	2,374	12,625	7 55	25.1	Milton.
950,970	.....	205,303	19,236	9,371	28,607	12 99	30.1	Oakville.
2,964,625	19,600	514,093	53,529	24,745	78,274	8 86	26.4	Totals.
2,782,006	16,275	509,690	43,748	24,670	68,418	8 12	24.7	
								HASTINGS:
68,111	.....	4,000	1,157	2,011	3,168	2 92	46.5	Bangor, W. & McC.
72,561	.....	2,675	991	1,341	2,332	3 47	32.1	Carlow.
87,713	.....	8,350	1,096	2,638	3,734	5 49	42.6	Dungannon.
273,467	.....	13,700	3,541	3,007	6,548	5 25	23.9	Elzevir and G.
80,600	.....	2,675	1,282	1,966	3,248	3 69	40.3	Faraday.
1,647,324	.....	33,775	16,098	4,844	20,942	6 13	12.7	Hungerford.
911,507	.....	31,400	6,032	5,697	11,729	5 82	12.9	Huntingdon.
63,885	.....	3,890	542	778	1,320	3 01	20.7	Limerick.
850,760	.....	53,450	9,068	7,746	16,814	6 85	19.8	Madoc.
619,945	.....	10,500	4,187	4,824	9,011	5 57	14.5	Marmora and Lake.
37,381	.....	2,370	656	1,436	2,092	4 15	56.0	Mayo.
91,036	.....	13,000	1,598	3,128	4,726	2 22	51.9	Monteagle and H.
1,248,553	.....	3,150	10,604	9,997	20,601	7 34	16.5	Rawdon.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
HASTINGS—*Con.*		Acres.	$	$	$	$	$
Sidney ..... Tp.	4,115	69,329	1,896,800	1,118 995	2,678,945	32,200	1,623
Thurlow ..... "	3,736	53,682	1,231,400	2,096,875	3,285,475	1,051,700	.....
Tudor and Cashel "	816	61,938	75,796	46,300	115,121	1,805	.....
Tyendinaga..... "	2,940	78,601	1,232,184	405,613	1,584,802	4,725	.....
Wollaston ..... "	695	51,288	107,002	36,865	137,317	2,200	.....
Totals.... 1910	32,249	1,061,889	9,143,019	5,266,446	13.780,360	1,152,508	15,888
1909	32,441	1,071,518	9,402,648	4,561,711	13,314,887	904,445	7,932
Bancroft .....Vill.	704	474	22,655	90,540	101,060	11,336	655
Madoc..... "	1,036	423	121,102	309,623	328,325	33,665	7,543
Marmora ..... "	928	470	87,253	205,890	269,293	28,725	2,614
Stirling ..... "	846	845	96,787	264,482	326,769	35,660	4,483
Tweed ..... "	1,397	398	148,940	420,520	487,660	38,026	3,600
Deseronto ..... Tn.	1,998	530	268,730	736,050	864,980	136,143	15,093
Totals.... 1910	6,909	3,140	745,467	2,027,105	2,378,087	283,555	33,988
1909	7,152	2,818	718,417	2,014,276	2,352,108	281,233	34,115
*Trenton, Town 1910	3,762	1,800	454,946	1,026,741	1,322,402	139,968	26,947
1909	4,156	1,800	460,904	935,311	1,274,620	130,636	20,530
*Belleville City. 1910	10,012	1,700	1,026,695	3,718,100	3,770,900	461,699	130,060
1909	10,012	1,700	999,162	3,579,478	3,714,905	473,693	127,480
HURON:							
Ashfield .....Tp.	2,693	64,017	1,956,825	597,150	2,471,775	7,100	300
Colborne ..... "	1,472	33,380	1,006,000	365,825	1,356,025	10,900	1,500
Goderich ..... "	1,870	52,336	1,393,325	337,150	1,704,575	600	.....
Grey ..... "	2,848	64,822	1,942,630	874,950	2,796,480	7,200	1,720
Hay..... "	3,071	52,486	1,498,199	906,380	2,358,329	21,786	1,350
Howick..... "	3,565	67,552	1,926,865	964,985	2,858,700	13,785	2,865
Hullett..... "	2,432	53,478	1,470,550	534,050	1,979,700	3,850	.....
McKillop ..... "	2,198	52,170	1,701,325	590,965	2,247,770	1,200	.....
Morris ..... "	2,125	54,873	1,461,112	665,450	2,096,412	3,400	600
Stanley..... "	1,785	43,351	1,515,923	452,765	1,951,363	2,697	1,650
Stephen ..... "	3,508	56,808	2,027,965	735,980	2,697,695	23,427	1,000
Tuckersmith .... "	2,197	40,735	1,631,883	491,100	2,099,183	8,185	2,500
Turnberry..... "	1,655	35,660	899,185	465,695	1,323,855	3,510	2,400
Usborne..... "	1,850	42,682	2,000,495	432,900	2,412,295	5,150	.....
Wawanosh, E.... "	1,575	41,730	1,137,483	445,575	1,566,018	2,577	850
Wawanosh, W.... "	1,723	41,699	1,120,975	503,850	1,591,925	9,786	4,800
Totals.... 1910	36,567	797,779	24,690,740	9,364,770	33,512,100	125,153	21,535
1909	37,350	799,435	24,912,198	9,190 465	33,618,928	143,513	26,408
Bayfield .....Vill.	501	1,763	43,670	64,770	99,400	4,250	350
Blyth ..... "	744	449	54,940	198,396	243,336	31,511	2,923
Brussels..... "	1,091	422	56,190	304,295	339,185	40,057	6,208
Exeter ..... "	1,606	1,049	135,482	431,731	533,163	44,437	8,463
Hensall ..... "	832	423	76,885	225,225	277,760	22,830	4,755
Wroxeter..... "	402	491	33,316	124,687	137,053	13,029	900
Clinton.....Tn.	2,300	903	179,710	616,995	690,405	69,556	6,050
Goderich ..... "	4,630	1,000	450,000	1,442,125	1,717,125	235,794	59,281

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $	Municipalities.
$	$	$	$	$	$	$ c.		HASTINGS—*Con.*
2,712,768	.....	336,850	18,301	11,482	29,783	7 24	11.0	Sidney.
4,337,175	1,817,500	42,800	13,624	15,960	29,584	7 94	6.8	Thurlow.
116,926	.....	6,975	1,794	1,275	3,069	3 76	26.2	Tudor and Cashel.
1,589,527	.....	52,995	11,409	10,723	22,132	7 53	13.9	Tyendinaga.
139,517	.....	6,550	1,646	1,639	3,285	4 73	23.5	Wollaston.
14,948,750	1,817,500	629,105	103,626	90,492	194,118	6 02	13.0	Totals.
14,227,26	1,123,300	649,472	96,686	84,851	181,537	5 60	12.8	Totals.
113,051	.....	12,135	1,980	1,553	3,533	5 02	31.3	Bancroft.
369,533	.....	102,400	4,584	3,365	7,949	7 67	21.5	Madoc.
300,632	3,400	23,850	3,250	1,921	5,171	5 57	17.2	Marmora.
366,912	.....	34,500	4,868	2,568	7,436	8 79	20.3	Stirling.
529,286	4,875	81,800	6,396	3,638	10,034	7 18	19.0	Tweed.
1,016,216	.....	139,800	19,639	7,927	27,566	13 80	27.1	Deseronto.
2,695,630	8,275	394,485	40,717	20,972	61,689	8 93	22.9	Totals.
2,667,456	11,225	380,585	42,169	18,095	60,264	8 43	22.6	Totals.
1,489,317	97,375	159,285	23,032	12,884	35,916	9 55	24.1	*Trenton Town.
1,425,786	97,812	121,595	24,301	10,272	34,573	8 32	24.2	*Trenton Town.
4,362,659	30,000	973,895	91,749	30,896	122,645	12 25	28.1	*Belleville City.
4,316,078	30,000	863,735	90,363	30,315	120,678	12 05	28.0	*Belleville City.
								HURON:
2,479,175	.....	82,200	7,763	8,335	16,098	5 98	6.5	Ashfield.
1,368,425	.....	15,800	5,868	4,941	10,809	7 34	7.9	Colborne.
1,705,175	.....	25,900	7,737	5,472	13,209	7 06	7.7	Goderich.
2,805,400	.....	21,100	21,274	7,631	28,905	10 15	10.3	Grey.
2,381,465	.....	46,250	12,121	8,973	21,094	6 87	8.9	Hay.
2,875,350	.....	33,150	14,813	10,387	25,200	7 07	8.8	Howick.
1,983,550	.....	24,900	10,217	7,326	17,543	7 21	8.8	Hullett.
2,248,970	.....	44,520	16,686	6,114	22,800	10 37	10.1	McKillop.
2,100,412	.....	30,150	14,229	6,330	20,559	9 67	9.8	Morris.
1,955,710	.....	17,325	10,268	5,803	16,071	9 00	8.2	Stanley.
2,722,122	.....	66,250	14,713	9,964	24,677	7 03	9.1	Stephen.
2,109,868	.....	23,800	15,084	4,920	20,004	9 10	9.5	Tuckersmith.
1,329,765	.....	41,025	8,491	4,908	13,399	8 10	10.1	Turnberry.
2,417,445	.....	21,100	14,689	4,979	19,668	10 63	8.1	Usborne.
1,569,445	.....	17,040	6,006	6,071	12,077	7 67	7.7	Wawanosh, E.
1,606,511	.....	32,900	5,732	4,527	10,259	5 95	6.4	Wawanosh, W.
33,658,788	.....	543,410	185,691	106,681	292,372	8 00	8.7	Totals.
33,788,849	.....	483,735	178,650	101,040	279,690	7 49	.3	Totals.
104,000	500	9,040	909	1,040	1,949	3 89	18.7	Bayfield.
277,770	9,680	10,000	3,460	2,222	5,682	7 64	20.5	Blyth.
385,450	4,000	21,300	6,988	2,737	9,725	8 91	25.2	Brussels.
586,063	16,980	34,050	10,430	3,223	13,653	8 50	23.3	Exeter.
305,345	.....	24,350	3,407	1,677	5,084	6 11	16.7	Hensall.
150,982	.....	20,950	1,129	1,218	2,347	5 84	15.5	Wroxeter.
766,011	4,500	106,300	15,381	7,207	22,588	9 82	29.5	Clinton.
2,012,200	452,200	175,000	32,302	11,872	44,174	9 54	22.0	Goderich.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
HURON—*Con.*		Acres.	$	$	$	$	$
Seaforth .....Tn.	2,142	550	157,215	683,875	745,990	91,692	8,450
Wingham..... "	2,385	650	238,205	621,310	715,615	78,262	3,600
Totals.... 1910	16,633	7,700	1,425,613	4,713,409	5,499,032	631,418	100,980
Totals.... 1909	16,584	7,664	1,384,835	4,675,819	5,423,889	603,012	114,367
KENORA:							
Ignace .....Tp.	237	730	23,266	72,240	92,316	9,120	22,780
Jaffray & Melick. "	168	30,365	96,458	36,636	131,394	.....	.....
Machin ..... "	198	22,863	64,293	15,125	77,758	1,100	300
Van Horne..... "	77	15,088	47,298	17,935	64,733	.....	.....
Totals.... 1910	680	69,046	231,315	141,936	366,201	10,220	23,080
Totals.... 1909	1,484	69,714	300,493	283,803	565,211	25,585	27,075
*Dryden.....Tn.	682	750	114,586	157,350	256,236	16,858	.....
Keewatin..... "	1,256	2,560	108,605	323,525	392,130	104,760	12,300
Kenora ..... "	5,246	7,140	962,910	2,619,495	2,711,570	401,520	158,142
Totals.... 1910	7,184	10,450	1,186,101	3,100,370	3,359,936	523,138	170,442
Totals.... 1909	7,322	6,400	1,043,897	2,403,823	3,233,525	528,475	314,623
KENT:							
Camden .....Tp.	2,164	40,631	1,292,090	250,890	1,512,350	1,200	200
Chatham ..... "	5,525	84,049	2,891,923	555,085	3,411,808	20,700	1,000
Dover ..... "	4,140	66,617	2,332,482	632,230	2,856,712	6,591	.....
Harwich..... "	4,817	88,296	3,367,863	685,150	3,955,613	6,850	6,020
Howard ..... "	2,760	58,031	2,008,190	450,380	2,417,120	5,500	.....
Orford ..... "	2,698	49,827	1,458,192	355,650	1,783,362	9,845	900
Raleigh ..... "	3,888	71,211	2,357,257	448,190	2,736,722	6,333	43,030
Romney ..... "	1,737	26,264	803,079	177,650	952,954	6,050	8,500
Tilbury, E. ..... "	2,834	54,461	1,484,727	334,200	1,785,232	4,085	33,600
Zone ..... "	1,053	26,907	546,823	131,425	671,048	850	21,085
Totals.... 1910	31,616	566,294	18,542,626	4,020,850	22,082,921	68,004	114,335
Totals.... 1909	31,965	566,085	18,483,169	4,035,321	22,066,675	65,310	134,121
Thamesville ....Vill.	778	387	69,785	190,040	232,675	17,955	6,225
Blenheim..... Tn.	1,250	490	110,572	353,100	400,372	35,785	5,030
Bothwell..... "	751	231	60,110	150,915	177,775	16,590	4,394
Dresden..... "	1,699	642	105,475	398,995	465,720	30,775	8,750
Ridgetown ..... "	2,106	621	159,830	534,715	611,245	65,695	5,400
Tilbury ..... "	1,406	577	63,045	326,430	334,125	30,133	1,400
Wallaceburg ... "	3,565	577	235,041	741,610	762,151	68,206	29,648
Totals.... 1910	11,555	3,525	803,858	2,695,805	2,984,063	265,139	60,847
Totals.... 1909	11,373	3,526	822,138	2,552,735	2,864,073	261,883	69,335
*Chatham, City 1910	10,317	1,650	1,884,816	3,779,047	4,557,007	529,289	98,962
Totals.... 1909	10,220	1,650	1,527,915	4,033,362	4,480,071	526,037	92,912
LAMBTON:							
Bosanquet.....Tp.	2,266	71,019	1,612,360	560,282	2,155,552	2,500	.....
Brooke ..... "	2,927	74,062	2,082,140	455,360	2,507,550	9,145	900
Dawn ..... "	2,730	65,530	1,680,985	283,230	1,928,215	900	.....
Enniskillen..... "	3,447	82,116	2,180,700	414,930	2,569,880	1,900	70,130

* Dryden incorporated January 1st, 1910.

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $.	Municipalities.
$	$	$	$	$	$	$ c.		HURON—*Con.*
846,132	26,600	95,100	19,678	6,395	26,073	12 17	30.8	Seaforth.
797,477	15,300	143,900	16,919	5,989	22,908	9 61	28.7	Wingham.
6,231,430	529,760	639,990	110,603	43,580	154,183	9 27	24.7	Totals.
6,141,268	498,530	636,765	108,169	40,581	148,750	8 97	24.2	
								KENORA:
124,316	.....	3,190	906	373	1,279	5 40	10.3	Ignace.
131,394	4,979	1,700	2,528	2,000	4,528	2 70	34.5	Jaffray and Melick.
79,158	3,200	1,660	925	350	1,275	6 44	16.2	Machin.
64,733	.....	500	486	420	906	11 77	14.0	Van Horne.
399,501	8,179	7,050	4,845	3,143	7,988	11 75	20.0	Totals.
617,871	3,200	19,085	5,802	4,061	9,863	6 65	16.0	
273,094	.....	15,700	3,096	2,066	5,162	7 57	18.9	Dryden.
509,190	.....	40,000	6,262	6,313	12,575	10 01	24.7	Keewatin.
3,271,232	326,180	870,835	47,492	24,378	71,870	13 70	22.0	Kenora.
4,053,516	326,180	926,535	56,850	32,757	89,607	12 47	22.2	Totals.
4,076,623	326,680	214,195	56,590	30,469	87,059	11 89	21.0	
								KENT:
1,513,750	.....	30,630	12,282	8,168	20,450	9 45	13.5	Camden.
3,433,508	2,500	35,200	40,597	14,232	54,829	9 92	16.0	Chatham.
2,863,303	.....	108,000	28,253	9,664	37,917	9 16	13.2	Dover.
3,968,483	.....	97,400	31,604	13,822	45,426	9 43	11.4	Harwich.
2,422,620	.....	41,450	19,700	9,316	29,016	10 51	12.0	Howard.
1,794,107	.....	30,480	17,628	7,774	25,402	9 42	14.2	Orford.
2,786,085	.....	68,725	34,593	11,767	46,360	11 92	16.6	Raleigh.
967,504	.....	27,775	13 885	4,950	18,835	10 84	19.5	Romney.
1,822,917	.....	33,695	40,405	9,644	50,049	17 66	27.5	Tilbury, E.
692,983	.....	7,200	6,577	2,560	9,137	8 68	13.2	Zone.
22,265,260	2,500	480,555	245,524	91,897	337,421	10 67	15.2	Totals.
22,266,106	2,500	451,815	232,207	82,879	315,086	9 86	14.2	
256,855	.....	27,150	4,770	1,824	6,594	8 48	25.7	Thamesville.
441,187	.....	63,300	6,524	3,750	10,274	8 22	23.3	Blenheim.
198,759	.....	33,250	3,545	1,487	5,032	6 70	25.3	Bothwell.
505,245	8,500	38,750	10,082	4,219	14,301	8 42	28.3	Dresden.
682,340	.....	83,300	12,305	5,854	18,159	8 62	26.6	Ridgetown.
365,658	.....	55,350	9,513	3,513	13,026	9 26	35.6	Tilbury.
860,005	.....	214,500	16,109	7,890	23,999	6 73	27.9	Wallaceburg.
3,310,049	8,500	515,600	62,848	28,537	91,385	7 91	27.6	Totals.
3,195,291	10,500	510,800	64,718	28,042	92,760	8 16	29.0	
5,185,258	236,745	1,106,856	141,628	46,410	188,038	18 23	36.3	*Chatham.
5,099,020	222,595	1,081,206	144,065	40,012	184,077	18 01	36.1	
								LAMBTON:
2,158,052	.....	17,120	12,597	7,990	20,587	9 09	9.5	Bosanquet.
2,517,595	.....	30,250	25,104	11,246	36,350	12 42	14.4	Brooke.
1,929,115	.....	36,000	19,290	9,611	28,901	10 59	15.0	Dawn.
2,641,910	.....	25,750	31,062	13,251	44,313	12 86	16.8	Enniskillen.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
LAMBTON.—*Con.*		Acres.	$	$	$	$	$
Euphemia.....Tp.	1,645	39,179	837,804	200,302	1,022,206	6,390	.....
Moore ..... "	3,658	72,531	2,152,335	729,753	2,847,928	32,007	23,645
Plympton..... "	3,035	75,015	2,056,783	460,270	2,491,373	2,940	.....
Sarnia..... "	1,894	38,668	979,050	338,865	1,238,965	600	.....
Sombra..... "	3,588	72,304	1,350,816	398,424	1,719,430	7,670	1,710
Warwick..... "	2,581	70,189	2,117,050	325,754	2,417,504	4,200	.....
Totals.... 1910	27,771	660,613	17,050,353	4,167,170	20,898,603	68,252	96,385
Totals.... 1909	28,437	659,640	16,733,372	4,095,400	20,512,527	75,605	105,515
Alvinston.....Vill.	815	410	59,080	221,615	249,220	26,862	6,298
Arkona..... "	450	457	27,075	83,425	104,550	8,380	1,400
Courtright..... "	329	351	36,365	108,640	134,410	9,829	.....
Oil Springs..... "	636	1,885	77,587	151,223	211,310	18,000	41,842
Point Edward... "	907	616	115,026	145,275	248,326	626	.....
Thedford ..... "	593	435	28,310	98,460	121,470	11,220	.....
Watford ..... "	1,214	400	76,018	294,142	332,360	32,475	3,895
Wyoming ..... "	663	475	29,565	107,645	120,675	8,135	1,043
Forest..... Tn.	1,451	950	111,897	354,156	417,703	38,819	6,910
Petrolea..... "	3,696	2,700	425,920	901,328	1,099,048	79,967	59,081
Sarnia..... "	9,810	1,450	1,774,422	3,762,940	4,438,192	335,006	63,872
Totals.... 1910	20,564	10,129	2,761,265	6,228,849	7,477,264	569,317	184,341
Totals.... 1909	20,930	10,290	2,773,800	6,174,917	7,412,972	582,545	208,861
LANARK:							
Bathurst .....Tp.	2,052	61,691	961,006	366,830	1,293,801	6,050	.....
Beckwith..... "	1,338	56,424	378,370	148,455	516,640	1,540	.....
Burgess, N..... "	709	33,485	342,568	99,395	433,763	.....	1,200
Dalhousie, etc.... "	1,450	70,034	322,842	140,000	453,382	3,835	.....
Darling..... "	573	41,832	71,940	39,840	106,830	200	.....
Drummond..... "	1,696	55,818	869,250	296,795	1,143,245	5,080	1,320
Elmsley, N..... "	788	28,308	498,225	142,355	632,680	3,995	.....
Lanark..... "	1,508	61,270	608,040	254,965	839,555	6,089	.....
Lavant..... "	435	43,350	49,422	32,735	78,047	1,500	.....
Montague..... "	1,820	62,322	476,823	150,458	609,281	.....	.....
Pakenham..... "	1,390	57,358	421,603	225,265	618,868	13,955	1,250
Ramsay..... "	1,792	60,976	1,024,305	384,265	1,376,020	15,329	1,049
Sherbrooke, S.... "	679	37,167	87,170	38,797	116,467	1,200	.....
Totals.... 1910	16,230	670,035	6,111,564	2,320,155	8,218,579	58,773	4,819
Totals.... 1909	16,914	671,546	6,094,957	2,335,695	8,217,187	59,089	6,650
Lanark.....Vill.	707	1,090	51,805	190,080	211,685	23,320	7,154
Almonte .....Tn.	2,676	700	164,460	710,645	674,660	106,631	20,183
Carleton Place.... "	3,724	550	256,335	820,360	948,195	91,531	25,833
Perth..... "	3,359	1,400	439,580	1,023,230	1,175,810	101,585	37,495
Totals.... 1910	10,466	3,740	912,180	2,744,315	3,010,350	323,067	90,665
Totals.... 1909	11,039	3,740	919,155	2,750,920	3,029,080	339,719	105,018
*Smith's Falls Town..... 1910	6,003	1,030	501,322	1,527,020	1,728,542	116,377	9,400
*Smith's Falls Town..... 1909	5,812	1,030	519,875	1,389,175	1,588,450	114,673	16,384

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $.	Municipalities.
$	$	$	$	$	$	$ c.		LAMBTON—*Con.*
1,028,596	.....	15,900	11,335	5,971	17,306	10 52	16.8	Euphemia.
2,903,580	.....	34,160	26,974	11,292	38,266	10 46	13.2	Moore.
2,494,313	.....	25,680	16,801	11,018	27,819	9 17	11.2	Plympton.
1,239,565	3,700	78,950	13,670	5,730	19,400	10 24	15.7	Sarnia.
1,728,810	.....	29,810	21,733	10,411	32,144	8 96	18.6	Sombra.
2,421,704	.....	25,300	14,141	8,434	22,575	8 75	9.3	Warwick.
21,063,240	3,700	318,920	192,707	94,954	287,661	10 36	13.7	Totals.
20,693,647	3,700	316,245	191,103	89,514	280,617	9 87	13.6	
282,380	4,000	31,475	4,810	2,600	7,410	9 09	26.2	Alvinston.
114,330	.....	5,950	1,391	929	2,320	5 16	20,3	Arkona.
144,239	.....	10,595	1,188	883	2,071	6 29	14.4	Courtright.
271,152	7,000	17,500	4,653	2,100	6,753	10 62	24.9	Oil Springs.
248,952	9,000	11,975	4,201	1,981	6,182	6 82	24.8	Point Edward.
132,690	.....	5,300	1,756	1,327	3,083	5 20	23.2	Thedford.
368,730	.....	37,800	5,495	4,499	9,994	8 23	27.1	Watford.
129,851	.....	16,535	2,518	1,428	3,946	5 95	30.4	Wyoming.
463,432	.....	48,350	7,316	5,191	12,507	8 62	27.0	Forest.
1,238,096	40,500	228,200	24,541	13,123	37,664	10 19	30.4	Petrolea.
4,837,070	84,150	1,099,170	94,611	38,152	132,763	13 53	27.4	Sarnia.
8,230,922	144,650	1,512,850	152,480	72,213	224,693	10 92	27.3	Totals.
8,204,378	161,350	1,535,745	148,634	69,690	218,324	10 43	26.6	
								LANARK:
1,299,851	.....	34,035	5,845	5,590	11,435	5 57	8.8	Bathurst.
518,180	.....	10,185	4,218	4,326	8,544	6 39	16.5	Beckwith.
434,963	.....	8,200	1,658	1,930	3,588	5 06	8.2	Burgess, N.
457,217	.....	9,460	3,071	3,648	6,719	4 63	14.7	Dalhousie, etc.
107,030	.....	4,950	840	1,071	1,911	3 34	17.9	Darling.
1,149,645	.....	22,800	11,431	1,085	12,516	7 38	10.9	Drummond.
636,675	.....	7,900	3,473	2,448	5,921	7 51	9.3	Elmsley, N.
845,644	.....	23,450	3,914	4,073	7,987	5 30	9.4	Lanark.
79,547	.....	4,110	776	1,172	1,948	4 48	24.5	Lavant.
609,281	.....	18,000	5,518	5,765	11,283	5 20	18.5	Montague.
634,073	.....	28,000	5,780	4,937	10,717	7 71	16.9	Pakenham.
1,392,398	.....	32,550	6,684	5,474	12,158	6 78	8.7	Ramsay.
117,667	.....	9,500	911	1,295	2,206	3 25	18.7	Sherbrooke, S.
8,282,171	.....	213,140	54,119	42,814	96,933	5 97	11.7	Totals.
8,282,926	.....	213,465	55,632	40,431	96,063	5 68	11.6	
242,159	.....	30,200	3,738	2,700	6,438	9 11	26.6	Lanark.
801,474	.....	200,445	14,044	7,935	21,979	8 21	27.4	Almonte.
1,065,559	22,000	128,500	19,786	9,697	29,483	7 92	27.7	Carleton Place.
1,314,890	5,000	287,000	28,215	11,752	39,967	11 90	30.4	Perth.
3,424,082	27,000	646,145	65,783	32,084	97,867	9 35	28.6	Totals.
3,473,817	45,400	640,995	61,097	30,713	91,810	8 32	26.4	
1,854,319	.....	299,800	38,023	15,764	53,787	8 96	29.0	*Smith's Fall
1,719,507	....	320,600	34,734	14,907	49,641	8 54	28.9	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
LEEDS:		Acres.	$	$	$	$	$
Bastard and Burgess, S.....Tp.	2,438	56,626	1,224,216	546,370	1,732,786	17,475	.....
Crosby, N..... "	950	42,598	259,122	77,625	334,507	750	.....
Crosby, S..... "	1,415	36,521	506,100	279,775	750,475	8,605	1,100
Elizabethtown ... "	3,432	77,033	928,470	527,925	1,397,160	9,190	.....
Elmsley, S..... "	704	22,467	330,293	122,065	449,443	1,705	.....
Escott, Front.... "	930	24,141	293,156	140,755	427,986	3,350	250
Kitley..... "	1,610	49,188	726,620	297,115	1,004,035	1,855	1,150
Leeds and Lansdowne, Front .. "	2,688	57,909	1,379,653	626,340	1,956,858	8,800	2,250
Leeds and Lansdowne, Rear ... "	2,205	45,365	925,229	493,755	1,387,134	25,826	2,000
Yonge, Front .... "	1,394	31,100	308,230	190,575	487,930	4,850	1,820
Yonge and Escott, Rear ..... "	1,104	27,534	297,935	117,250	410,605	1,810	200
Totals.... 1910	18,870	470,482	7,179,024	3,419,550	10,338,919	84,216	8,770
Totals.... 1909	19,207	466,814	7,144,762	3,454,071	10,351,544	91,874	9,702
Athens.....Vill.	720	500	76,430	313,065	323,245	19,690	9,064
Newboro ..... "	423	888	30,515	81,935	96,450	5,715	124
Westport ..... "	831	500	30,400	119,975	128,475	13,107	2,242
Gananoque..... Tn.	3,828	1,217	417,085	927,718	1,186,953	142,926	13,100
Totals.... 1910	5,802	3,105	554,430	1,442,693	1,735,123	181,438	24,530
Totals.... 1909	5,842	3,101	534,461	1,347,513	1,714,674	189,951	23,883
*Brockville Town. 1910	9,425	1,242	1,153,115	2,806,730	3,374,845	314,450	169,400
Brockville Town. 1909	9,275	1,242	1,295,215	2,592,615	3,298,645	307,575	165,400
LENNOX & ADDINGTON:							
Adolphustown ...Tp.	521	11,597	252,680	88,322	326,163	.....	500
Amherst Island.. "	713	14,660	263,270	105,140	350,910	4,300	400
Camden, E... .... "	3,354	86,402	1,181,841	537,180	1,691,171	29,890	10,200
Denbigh, etc..... "	868	46,784	48,206	19,210	60,366	.....	.....
Ernestown..... "	2,867	61,797	961,840	521,635	1,467,950	7,650	1,475
Fredericksburgh, N "	1,401	23,434	467,325	271,720	719,045	.....	.....
Fredericksburgh, S "	950	20,588	468,460	257,990	713,450	375	.....
Kaladar, etc..... "	1,070	60,610	60,572	64,500	120,327	2,869	.....
Richmond..... "	1,970	50,085	826,905	186,510	991,265	1,100	.....
Sheffield..... "	1,692	71,161	522,255	275,585	742,283	13,192	.....
Totals.... 1910	15,406	447,118	5,053,354	2,327,792	7,182,930	59,376	12,575
Totals.... 1909	15,811	443,332	5,064,140	2,319,617	7,187,791	62,714	10,225
Bath.....Vill.	366	2,165	51,653	70,921	113,449	6,350	1,043
Newburgh ..... "	501	3,200	49,890	75,915	118,205	5,000	2,543
Napanee .....Tn.	2,632	600	276,826	1,141,733	1,095,209	123,930	48,852
Totals.... 1910	3,499	5,965	378,369	1,288,569	1,326,863	135,280	52,438
Totals.... 1909	3,978	6,078	404,464	1,174,259	1,298,998	135,866	67,855
LINCOLN:							
Caistor.....Tp.	1,379	32,655	562,680	183,683	721,363	2,950	.....

* Taken from 1909 assessment roll for Crosby South Tp. as 1910 has not been received.

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $	Municipalities.
								LEEDS:
$	$	$	$	$	$	$ c.		Bastard & Burgess, S.
1,750,261	.....	37,800	7,986	9,188	17,174	7 04	9.8	
335,257	.....	2,240	2,843	3,671	6,514	6 86	19.4	Crosby, N.
760,180	.....	35,400	3,879	5,373	9,252	6 54	12.2	Crosby, S.
1,406,350	.....	59,235	11,802	11,542	23,344	6 80	16.6	Elizabethtown.
451,148	.....	2,915	2,583	2,411	4,994	7 09	11.1	Elmsley, S.
431,586	.....	5,925	3,944	3,305	7,249	7 79	16.8	Escott, Front.
1,007,040	.....	19,700	5,276	6,282	11,558	7 18	11.5	Kitley.
1,967,908	.....	49,135	12,125	9,333	21,458	7 98	10,9	Leeds and Lansdowne, Front.
1,414,960	.....	31,850	7,808	7,045	14,853	6 74	10.5	Leeds and Lansdowne, Rear.
494,600	.....	10,875	4,966	4,946	9,912	7 11	20.0	Yonge, Front.
412,615	.....	4,580	3,019	5,874	8,893	8 06	21.6	Yonge and Escott, Rear.
10,431,905	.....	259,655	66,231	68,970	135,201	7 16	13.0	Totals.
10,453,120	.....	247,289	61,886	66,194	128,080	6 67	12.3	
351,999	.....	66,250	2,869	3,444	6,313	8 77	17.9	Athens.
102,289	.....	16,000	1,129	913	2,042	4 83	20.0	Newboro'.
143,824	.....	21,900	2,292	2,233	4,525	5 45	31.5	Westport.
1,342,979	17,050	157,850	26,822	11,250	38,072	9 95	28.3	Gananoque.
1,941,091	17,050	262,000	33,112	17,840	50,952	8 78	26.2	Totals.
1,928,508	17,050	167,300	32,268	17,610	49,878	8 54	25.9	
3,858,695	183,750	585,000	69,669	33,129	102,798	10 91	26.6	*Brockville Town.
3,771,620	146,200	589,185	68,001	31,081	99,082	10 68	26.3	
								LENNOX AND ADDINGTON:
326,663	.....	14,839	2,720	1,760	4,480	8 60	13.7	Adolphustown.
355,610	.....	17,500	2,613	1,940	4,553	6 39	12.8	Amherst Island.
1,731,261	.....	27,850	16,031	11,269	27,300	8 14	15.8	Camden, E.
60,366	.....	7,050	789	1,107	1,896	2 18	31.4	Denbigh, etc.
1,477,075	.....	15,525	20,089	2,035	22,124	7 72	15.0	Ernestown.
719,045	.....	20,000	4,958	3,876	8,834	6 31	12.3	Fredericksburgh, N.
713,825	.....	13,000	4,696	3,557	8,253	8 69	11.6	Fredericksburgh, S.
123,196	.....	4,745	1,543	1,795	3,338	3 12	27.1	Kaladar, etc.
992,365	.....	22,150	8,301	5,968	14,269	7 24	14.4	Richmond.
755,475	.....	55,557	5,030	3,974	9,004	5 32	11.9	Sheffield.
7,254,881	.....	198,216	66,770	37,281	104,051	6 75	14.3	Totals.
7,260,730	.....	195,966	55,807	42,150	97,957	6 20	13.5	
120,842	.....	9,125	2,401	1,350	3,751	10 25	31.0	Bath.
125,748	.....	7,600	1,494	1,700	3,194	6 38	25.4	Newburgh.
1,267,991	.....	323,350	22,859	10,711	33,570	12 75	26.5	Napanee.
1,514,581	.....	340,075	26,754	13,761	40,515	11 58	26.7	Totals.
1,502,719	.....	279,725	35,379	2,700	38,079	9 57	25.3	
								LINCOLN:
724,313	.....	25,000	4,432	4,675	9,107	6 60	12.6	Caistor.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
LINCOLN—*Con.*		Acres.	$	$	$	$	$
Clinton .....Tp.	2,052	24,334	1,009,237	506,896	1,465,133	4,280	.....
Gainsborough .... "	2,064	39,795	873,441	347,557	1,197,078	8,645	975
Grantham ..... "	2,193	19,116	1,016,540	361,550	1,328,190	6,200	2,200
Grimsby, N..... "	1,505	15,654	769,595	414,506	1,160,601	100	300
Grimsby, S..... "	1,222	18,114	403,853	281,247	672,260	9,695	9,895
Louth ..... "	1,860	18,765	776,705	258,642	1,022,897	3,367	1,040
Niagara ..... "	1,674	22,111	984,503	342,982	1,265,710	3,325	800
Totals.... 1910	13,949	190,544	6,396,554	2,697,063	8,833,232	38,562	15,210
Totals.... 1909	14,266	190,919	6,380,121	2,605,163	8,747,044	45,057	17,535
Beamsville .....Vill.	955	517	107,990	243,485	337,575	17,131	12,500
Grimsby..... "	1,430	512	260,775	429,375	638,450	41,994	3,400
Merritton..... "	1,560	450	123,933	447,501	535,936	117,534	6,600
Port Dalhousie.. "	1,116	187	92,240	367,645	436,185	7,850	10,445
Niagara .....Tn.	1,645	625	261,734	472,111	558,095	26,104	3,800
Totals.... 1910	6,706	2,291	846,672	1,960,117	2,506,241	210,613	36,745
Totals.... 1909	6,680	2,327	767,336	1,999,610	2,464,596	253,502	34,307
*St. Catharines, City 1910	12,652	2,400	1,157,576	5,301,695	5,598,566	677,545	231,298
*St. Catharines, City 1909	12,307	2,400	1,462,361	4,847,630	5,529,246	662,447	230,450
MANITOULIN:							
Assiginack .....Tp.	929	50,061	160,950	90,777	239,302	9,100	600
Billings ..... "	409	24,357	47,304	26,016	70,320	1,561	.....
Burpee ..... "	317	23,352	27,780	6,120	32,550	.....	.....
Carnarvon ..... "	738	29,610	107,410	73,530	176,840	3,632	200
Cockburn Island.. "	314	21,424	53,885	20,010	70,450	5,050	.....
Gordon ..... "	720	36,034	93,865	35,225	126,590	200	.....
Howland ..... "	949	51,148	137,818	64,336	196,889	2,900	.....
Sandfield ..... "	247	19,691	28,058	11,925	36,483	.....	.....
Tehkummah ..... "	458	21,532	67,205	25,295	90,500	430	.....
Totals.... 1910	5,081	277,209	724,275	353,234	1,039,924	22,873	800
Totals.... 1909	5,013	274,548	750,020	344,915	1,066,770	20,305	5,200
Gore Bay.....Tn.	640	500	44,175	125,775	159,050	17,950	6,235
Little Current ... "	1,039	305	49,925	126,485	162,410	15,225	1,050
Totals.... 1910	1,679	805	94,100	252,260	321,460	33,175	7,285
Totals.... 1909	1,915	800	95,430	252,140	324,170	35,115	7,400
MIDDLESEX:							
Adelaide .....Tp.	1,699	44,157	1,674,275	395,955	1,995,330	5,590	1,850
Biddulph ..... "	2,005	39,233	1,512,990	382,475	1,855,165	4,775	3,550
Caradoc ..... "	3,120	62,146	1,778,520	684,480	2,412,395	8,250	800
Delaware ..... "	1,314	23,718	667,325	265,385	918,960	5,910	150
Dorchester, N.... "	3,205	51,634	1,663,575	959,255	2,550,080	14,726	200
Ekfrid ..... "	2,329	53,428	1,810,475	446,705	2,224,680	7,820	600
Lobo ..... "	1,998	47,265	1,785,135	474,025	2,230,710	9,816	.....
London ..... "	8,743	99,207	4,272,668	2,633,190	5,944,858	40,700	11,489
McGillivray ..... "	2,390	66,610	2,282,510	339,000	2,595,210	1,000	.....
Metcalfe..... "	1,300	36,200	1,106,900	231,105	1,326,605	4,250	.....
Mosa..... "	1,873	47,248	1,240,396	283,780	1,517,437	100	1,800
Nissouri W..... "	2,510	49,451	1,952,205	707,635	2,651,840	13,030	.....

Assessed values and taxation for 1909 used for Carnarvon Tp., the returns for 1910 not having been received.

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $.	Municipalities.
$	$	$	$	$	$	$ c.		LINCOLN—*Con.*
1,469,413	.....	51,000	14,563	5,433	19,996	9 74	13.6	Clinton.
1,206,698	.....	23,920	6,795	6,381	13,176	6 38	10.9	Gainsborough.
1,336,590	190,000	49,900	9,635	4,841	14,476	6 60	10.8	Grantham.
1,161,001	.....	23,500	10,100	4,881	14,981	9 95	12.9	Grimsby, N.
691,850	4,469	12,840	6,735	2,511	9,246	7 57	13.4	Grimsby, S.
1,027,304	.....	12,450	8,542	5,735	14,277	7 68	13.9	Louth.
1,269,835	.....	61,775	12,312	2,661	14,973	8 93	11.8	Niagara.
8,887,004	194,469	260,385	73,114	37,118	110,232	7 90	12.4	Totals.
8,809,636	194,019	238,240	67,834	35,536	103,370	7 25	11.7	
367,206	18,920	13,900	6,668	2,570	9,238	9 67	25.2	Beamsville.
683,844	.....	51,700	10,417	7,191	17,608	12 31	25.7	Grimsby.
660,070	23,500	35,498	10,783	4,695	15,478	9 92	23.4	Merritton.
454,480	.....	23,700	6,459	2,698	9,157	8 21	20.1	Port Dalhousie.
587,999	.....	175,750	12,975	1,152	14,127	8 59	24.0	Niagara.
2,753,599	42,420	300,548	47,302	18,306	65,608	9 78	23.8	Totals.
2,752,405	226,620	302,350	42,896	16,499	59,395	8 89	21.6	
6,507,409	330,700	860,705	149,376	39,300	188,676	14 91	29.0	*St. Catharines
6,422,143	584,400	780,745	131,117	34,131	165,248	13 43	25.7	
								MANITOULIN:
249,002	.....	12,425	1,865	2,690	4,555	4 90	18.3	Assiginack.
71,881	.....	3,000	1,592	416	2,008	4 91	27.9	Billings.
32,550	.....	1,350	392	705	1,097	3 46	33.7	Burpee.
180,672	.....	4,100	1,021	1,413	2,434	3 30	13.5	Carnarvon.
75,500	.....	3,445	400	569	969	3 09	12.8	Cockburn Island.
126,790	.....	2,500	1,369	739	2,108	2 93	16.6	Gordon.
199,789	.....	5,265	877	2,636	3,513	3 70	17.6	Howland.
36,483	.....	3,500	420	614	1,034	4 19	28.3	Sandfield.
90,930	.....	2,000	1,286	626	1,912	4 17	21.0	Tehkummah.
1,063,597	.....	37,585	9,222	10,408	19,630	3 86	18.5	Totals.
1,092,275	.....	28,165	9,012	10,900	19,912	3 97	18.2	
183,235	3,350	10,900	2,723	2,978	5,701	8 91	31.1	Gore Bay.
178,685	2,500	14,000	1,620	2,680	4,300	4 14	24.1	Little Current.
361,920	5,850	24,900	4,343	5,658	10,001	5 96	27.6	Totals.
366,685	5,750	23,400	4,233	5,290	9,523	4 97	26,0	
								MIDDLESEX:
2,002,770	.....	74,900	11,307	5,671	16,978	9 99	8.5	Adelaide.
1,863,490	.....	40,300	9,337	5,585	14,922	7 44	8.0	Biddulph.
2,421,445	.....	50,605	17,645	9,182	26,827	8 60	11.1	Caradoc.
925,020	.....	13,750	7,509	4,035	11,544	8 79	12.5	Delaware.
2,565,006	.....	72,750	16,543	9,477	26,020	8 12	10.1	Dorchester, N.
2,233,100	.....	32,500	15,645	6,528	22,173	9 52	9.9	Ekfrid.
2,240,526	.....	28,450	16,530	5,747	22,277	11 15	9.9	Lobo.
5,997,047	.....	961,000	42,431	21,867	64,298	7 35	10.7	London.
2,594,210	.....	28,300	14,781	8,382	23,163	9 69	8.9	McGillivray.
1,330,855	.....	11,400	10,969	4,077	15,046	11 57	11.3	Metcalfe.
1,519,337	.....	6,739	10,834	5,893	16,727	8 93	11.0	Mosa.
2,647,870	.....	24,400	18,628	8,240	26,868	10 70	10.1	Nissouri, W.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
		Acres.	$	$	$	$	$
MIDDLESEX.—*Con.*							
Westminster.....Tp.	4,744	63,526	2,833,835	1,236,775	3,964,010	13,000	2,075
Williams, E. .... "	1,285	38,606	1,235,557	95,023	1,326,205	2,950	.....
Williams, W..... "	1,230	35,242	969,720	198,760	1,151,230	2,321	200
Totals.... 1910	39,745	757,739	26,786,086	9,332,948	34,645,715	134,238	22,714
Totals.... 1909	40,607	758,868	26,877,096	9,219,766	34,593,289	130,120	21,155
Ailsa Craig.....Vill.	628	434	106,640	61,655	147,795	13,310	1,670
Glencoe ..... "	853	454	66,435	294,595	316,605	27,889	1,490
Lucan ..... "	828	500	66,225	192,400	235,525	22,875	7,575
Newbury ..... "	337	500	24,729	52,775	71,454	7,119	.....
Wardsville..... "	228	413	15,020	71,198	59,968	2,808	263
Parkhill..... Tn.	1,367	525	87,522	363,682	376,704	36,766	9,970
Strathroy..... "	3,116	2,000	190,075	951,910	1,002,895	118,545	24,600
Totals.... 1910	7,357	4,826	556,646	1,988,215	2,210,946	229,312	45,568
Totals.... 1909	7,204	4,823	482,163	1,947,060	2,099,168	217,484	54,841
*London City..... 1910	46,727	4,478	10,413,574	16,336,870	22,501,064	2,603,692	1,112,623
*London City..... 1909	49,507	4,478	10,473,664	15,338,690	21,698,174	2,566,438	1,059,871
MUSKOKA:							
Brunel .....Tp.	676	41,432	91,520	34,445	121,965	750	.....
Cardwell ..... "	330	33,531	80,388	20,725	98,663	.....	.....
Chaffey ..... "	925	42,942	119,163	47,675	158,113	2,100	.....
Draper ..... "	880	39,777	94,013	30,859	119,612	1,555	570
McLean & Ridout. "	766	42,386	81,637	110,125	184,382	5,287	.....
Macaulay..... "	668	38,217	85,952	29,959	112,256	350	.....
Medora & Wood.. "	1,031	69,291	237,550	319,800	515,975	4,025	.....
Monck..... "	1,086	28,456	178,475	193,227	362,477	5,432	1,918
Morrison..... "	856	27,051	69,742	38,647	105,859	3,405	140
Muskoka..... "	638	31,782	82,438	104,375	120,863	.....	2,100
Oakley ..... "	296	27,098	44,119	17,930	57,849	650	.....
Ryde..... "	466	26,733	56,174	11,050	64,224	800	.....
Stephenson ..... "	1,003	42,786	142,299	97,500	220,199	5,954	500
Stisted..... "	624	42,503	89,114	40,265	116,484	805	.....
Watt..... "	844	35,056	126,895	90,880	208,065	4,679	.....
Totals.... 1910	11,089	569,041	1,579,479	1,187,462	2,566,986	35,792	5,228
Totals.... 1909	11,371	562,541	1,548,727	1,161,465	2,514,172	40,263	3,069
Port Carling....Vill.	300	3,817	44,515	83,975	117,790	6,525	265
Bracebridge.....Tn.	2,976	605	170,080	695,725	674,375	99,985	12,480
Gravenhurst..... "	2,080	694	111,496	464,165	469,086	44,905	3,891
Huntsville..... "	2,307	436	122,356	449,427	514,508	64,109	7,969
Totals.... 1910	7,663	5,552	448,447	1,693,292	1,775,759	215,524	24,605
Totals.... 1909	7,875	5,553	493,147	1,637,685	1,795,027	221,882	30,479
NIPISSING:							
Bonfield.....Tp.	1,155	41,694	94,833	30,110	120,143	1,654	.....
Bucke..... "	1,205	15,408	205,698	29,642	231,710	.....	.....
Caldwell ..... "	1,301	30,879	316,536	199,306	485,342	8,617	1,604
Calvin ..... "	441	27,822	51,610	18,826	62,436	.....	.....

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $.	Municipalities.
$	$	$	$	$	$	$ c.		
								MIDDLESEX.—*Con.*
3,979,085	17,000	106,600	26,761	12,777	39,538	8 33	9.9	Westminster.
1,329,155	.....	4,375	10,956	3,973	14,929	11 62	11.2	Williams, E.
1,153,751	.....	17,250	7,385	3,603	10,988	8 93	9.5	Williams, W.
34,802,667	17,000	1,473,319	237,261	115,037	352,298	8 86	10.1	} Totals.
34,744,564	15,000	1,503,573	232,005	100,422	332,427	8 19	9.6	
162,775	.....	20,500	2,704	1,302	4,006	6 38	24.6	Ailsa Craig.
345,984	.....	44,425	6,801	1,822	8,623	10 11	24.9	Glencoe.
265,975	.....	23,100	2,720	2,660	5,380	6 50	20.2	Lucan.
78,573	.....	6,050	920	586	1,506	4 47	19.2	Newbury.
63,039	.....	26,250	569	714	1,283	5 63	20.4	Wardsville.
423,440	.....	74,500	6,937	4,236	11,173	8 17	26.4	Parkhill.
1,146,040	20,810	139,090	19,199	7,900	27,099	8 70	23.6	Strathroy.
2,485,826	20,810	333,915	39,850	19,220	59,070	8 03	23.8	} Totals.
2,371,493	10,230	330,055	40,597	18,147	58,744	8 15	24.8	
26,217,379	60,880	4,249,380	492,258	219,558	711,816	15 23	27.2	} *London.
25,324,483	80,600	4,114,180	470,744	213,362	684,106	13 82	27.1	
								MUSKOKA;
122,715	.....	4,000	876	1,707	2,583	3 82	21.0	Brunel.
98,663	.....	2,450	759	966	1,725	5 23	17.5	Cardwell.
160,213	.....	8,725	970	2,479	3,449	3 73	21.5	Chaffey.
121,737	.....	5,260	2,239	1,399	3,638	4 13	29.9	Draper.
189,669	25,660	7,380	2,562	1,519	4,081	5 33	21.5	McLean and Ridout.
112,606	.....	3,655	1,187	1,394	2,581	3 86	22.9	Macaulay.
520,000	.....	41,375	7,500	4,042	11,542	11 19	22.2	Medora and Wood.
369,827	.....	9,225	2,787	3,486	6,273	5 78	17.0	Monck.
109,404	.....	2,530	856	1,366	2,222	2 60	20.3	Morrison.
122,963	.....	65,950	1,323	1,441	2,764	4 33	22.5	Muskoka.
58,499	.....	4,200	913	829	1,742	5 89	29.8	Oakley.
65,024	.....	3,000	561	976	1,537	3 30	23.6	Ryde.
226,653	.....	19,600	2,433	3,099	5,532	5 52	24.4	Stephenson.
117,289	.....	12,895	1,929	1,401	3,330	5 34	28.4	Stisted.
212,744	.....	9,710	1,566	2,213	3,779	4 48	17.8	Watt.
2,608,006	25,660	199,955	28,461	28,317	56,778	5 12	21.8	} Totals.
2,557,504	25,480	196,020	24,589	26,319	50,908	4 48	19.9	
124,580	.....	10,700	1,515	822	2,337	7 79	18.8	Port Carling.
786,840	28,340	191,430	11,663	8,655	20,318	6 83	25.8	Bracebridge.
517,882	.....	106,575	10,508	7,250	17,758	8 54	34.3	Gravenhurst.
586,586	.....	57,275	9,796	6,628	16,424	7 12	28.0	Huntsville.
2,015,888	28,340	365,980	33,482	23,355	56,837	7 42	28.2	} Totals.
2,047,388	26,980	335,805	36,619	22,511	59,130	7 51	28.9	
								NIPISSING:
121,797	.....	4,800	1,131	2,084	3,215	2 78	26.4	Bonfield.
231,710	.....	3,630	4,478	4,396	8,874	7 36	38.3	Bucke.
495,563	.....	30,500	2,014	2,973	4,987	3 59	10.1	Caldwell.
62,436	.....	8,000	365	1,090	1,455	3 30	23.3	Calvin.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
NIPISSING—*Con.*		Acres.	$	$	$	$	$
Cameron.....Tp.	303	12,596	20,425	19,727	39,152	4,500	200
Casey ..... "	240	19,193	126,630	19,061	142,962	305	.....
Chamberlain..... "	182	22,923	52,395	4,820	54,345	.....	.....
Coleman..... "	2,565	9,761	251,555	383,740	590,295	2,800	5,752,536
Dack..... "	262	20,079	99,660	67,020	141,430	7,385	.....
Dymond ..... "	719	20,356	145,480	58,044	185,149	600	300
Evanturel ..... "	268	22,083	76,207	11,535	83,642	1,042	.....
Ferris..... "	994	40,169	130,294	58,840	178,444	1,625	.....
Harley ..... "	425	22,044	97,381	9,895	106,576	1,521	.....
Hilliard ..... "	158	19,697	56,995	6,320	62,015	850	.....
Hudson..... "	205	20,718	65,406	13,215	72,721	600	.....
James..... "	1,887	5,486	284,442	155,612	396,007	51,130	2,000
Kerns..... "	444	22,540	103,091	31,580	129,171	680	.....
Mattawan ..... "	170	11,304	17,340	7,560	24,500	.....	.....
Papineau ..... "	562	22,101	45,675	13,350	57,525	.....	.....
Springer ..... "	1,202	32,899	197,103	50,305	245,408	1,700	.....
Widdifield ..... "	2,681	53,087	344,570	254,550	505,860	6,800	2,800
Totals.... 1910	17,459	492,839	2,783,326	1,443,058	3,914,833	91,809	5,759,440
Totals.... 1909	14,467	473,835	2,326,830	1,430,123	3,498,527	73,717	3,597,356
Bonfield.....Tn.	437	547	27,805	62,150	70,555	2,600	.....
Cache Bay..... "	982	563	40,050	127,740	159,250	24,773	3,060
Cobalt..... "	4,562	417	630,390	678,950	1,229,740	108,750	841,752
Cochrane ..... "	748	295	259,850	507,850	376,200	45,657	750
Englehart ..... "	649	682	97,704	233,525	172,204	18,858	10,182
Haileybury ..... "	3,818	768	974,630	1,063,905	1,925,310	151,910	10,550
Latchford..... "	581	382	104,935	146,040	232,425	76,048	8,300
Mattawa ..... "	1,516	922	83,278	266,980	247,533	23,818	2,927
New Liskeard ... "	2,646	740	504,879	626,725	1,059,604	75,500	33,405
North Bay ..... "	7,851	2,100	844,922	1,878,850	2,266,722	179,383	62,796
Sturgeon Falls... "	2,282	1,440	392,578	1,275,935	1,344,300	62,411	19,225
Totals.... 1910	26,072	8,856	3,961,021	6,868,650	9,083,843	769,708	992,947
Totals.... 1909	23,370	6,991	3,391 147	4,805,909	7,343,556	1,014,737	651,248
NORFOLK:							
Charlotteville ...Tp.	2,875	59,752	876,145	422,855	1,268,100	8,130	5,525
Houghton..... "	1,847	33,574	344,260	172,490	500,200	6,000	.....
Middleton ..... "	2,306	44,630	794,165	203,955	976,630	5,215	965
Townsend ..... "	3,430	64,683	1,990,081	727,075	2,657,881	6,500	7,425
Walsingham, N... "	1,773	40,107	490,750	239,130	720,285	5,730	.....
Walsingham, S... "	1,606	52,586	689,480	187,640	855,470	3,400	140
Windham..... "	3,152	66,930	1,162,550	619,750	1,727,960	8,280	939
Woodhouse ..... "	2,067	34,777	1,126,708	508,180	1,579,598	9,435	5,555
Totals.... 1910	19,056	397,039	7,474,139	3,081,075	10,286,124	52,690	20,549
Totals.... 1909	19,488	398,136	7,412,779	3,086,798	10,223,982	57,295	20,304
Delhi .....Vill.	825	500	36,400	172,175	196,950	24,615	3,042
Port Dover..... "	1,178	379	111,701	285,955	376,956	26,975	4,470
Port Rowan.... "	724	500	49,980	154,795	193,575	14,097	2,667
Waterford..... "	1,132	451	61,325	265,200	280,525	20,947	11,435
Simcoe.....Tn.	3,578	805	268,000	894,985	1,086,085	122,211	58,069
Totals.... 1910	7,437	2,635	527,406	1,773,110	2,134,091	208,845	79,683
Totals.... 1909	7,160	2,663	646,286	1,543,785	2,052,346	215,079	80,935

Cochrane incorporated 1910.
Hilliard Tp. organized Jan. 1910.

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed.					Municipalities.
			Municipal.	School.	Total.	Total per head.	Mills on $	
$	$	$	$	$	$	$ c.		NIPISSING—*Con.*
43,852	.....	1,000	195	350	545	1 80	12.4	Cameron.
143,267	.....	2,729	1,040	800	1,840	7 67	12.8	Casey.
54,345	6,850	2,870	441	579	1,020	5 60	18.8	Chamberlain.
6,345,631	.....	45,000	44,419	19,037	63,456	24 74	10.0	Coleman.
148,815	.....	25,250	2,869	1,722	4,591	17 52	30.9	Dack.
186,049	.....	18,375	3,349	2,369	5,718	7 95	30.7	Dymond.
84,684	.....	4,100	1,652	772	2,424	9 04	28.6	Evanturel.
180,069	.....	10,690	1,456	2,033	3,489	3 51	19.4	Ferris.
108,097	.....	700	2,413	794	3,207	7 55	29.7	Harley.
62,865	.....	1,300	1,435	1,297	2,732	17 29	43.5	Hilliard.
73,321	.....	5,900	1,736	2,603	4,339	21 17	59.2	Hudson.
449,137	.....	44,047	10,389	1,517	11,906	6 31	26.6	James.
129,851	.....	5,500	2,273	1,063	3,336	7 51	25.7	Kerns.
24,500	.....	400	236	220	456	2 68	18.6	Mattawan.
57,525	.....	1,500	277	858	1,135	2 02	19.7	Papineau.
247,108	1,800	2,000	1,786	2,624	4,410	3 67	17.8	Springer.
515,460	10,000	93,260	7,835	5,783	13,618	5 08	26.4	Widdifield.
9,766,082	18,650	311,551	91,789	54,964	146,753	8 41	15.0	Totals.
7,169,600	15,509	258,426	69,198	43,919	113,117	7 82	15.8	
73,155	.....	19,400	293	996	1,289	2 95	17.6	Bonfield.
187,083	.....	8,540	2,301	2,535	4,836	4 92	25.8	Cache Bay.
2,180,242	.....	79,600	62,970	11,667	74,637	16 37	34.2	Cobalt.
422,607	.....	391,500	7,226	3,381	10,607	14 18	25.1	Cochrane.
201,244	.....	159,025	2,844	2,186	5,030	7 75	25.0	Englehart.
2,087,770	.....	113,225	32,427	17,285	49,712	13 02	23.8	Haileybury.
316,773	.....	18,550	4,182	2,827	7,009	12 06	22.1	Latchford.
274,278	.....	102,725	4,751	4,478	9,229	6 09	33.6	Mattawa.
1,168,509	.....	72,000	23,281	9,348	32,629	12 33	27.9	New Liskeard.
2,508,901	4,000	457,050	26,980	26,179	53,159	6 77	21.2	North Bay.
1,425,936	142,060	324,213	16,190	12,353	28,543	12 51	20.0	Sturgeon Falls.
10,846,498	146,060	1,745,828	183,445	93,235	276,680	10 61	25.5	Totals.
9,009,541	56,000	853,500	162,569	78,106	240,675	10 30	26.7	
								NORFOLK:
1,281,755	.....	30,900	6,890	7,136	14,026	4 88	10.9	Charlotteville.
506,200	.....	16,550	4,477	5,975	10,452	5 66	20.6	Houghton.
982,810	.....	21,490	7,841	6,481	14,322	6 21	14.6	Middleton.
2,671,806	.....	59,275	12,208	9,226	21,434	6 25	8.0	Townsend.
726,015	.....	9,595	6,073	5,743	11,816	6 66	16.3	Walsingham, N.
859,010	.....	21,650	5,979	5,427	11,406	7 10	13.3	Walsingham, S.
1,737,179	.....	54,340	8,726	8,268	16,994	5 39	9.8	Windham.
1,594,588	.....	55,290	8,498	4,462	12,960	6 27	8.1	Woodhouse.
10,359,363	.....	269,090	60,692	52,718	113,410	5 95	10.9	Totals.
10,301,581	.....	275,595	57,716	53,387	111,103	5 70	10.8	
224,607	.....	11,625	2,295	2,234	4,529	5 49	20.2	Delhi.
408,401	3,600	20,700	6,969	3,200	10,169	8 63	24.9	Port Dover.
210,339	.....	11,200	3,479	1,955	5,434	7 51	25.8	Port Rowan.
312,907	11,400	46,000	2,530	5,147	7,677	6 78	24.5	Waterford.
1,266,365	3,200	76,900	24,535	9,086	33,621	9 40	26.5	Simcoe.
2,422,619	18,200	166,425	39,808	21,622	61,430	8 26	25.4	Totals.
2,348,360	16,300	137,725	33,489	19,277	52,766	7 37	22.5	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
NORTHUMBERLAND:		Acres.	$	$	$	$	$
Alnwick .....Tp.	817	18,123	250,260	203,015	441,775	5,520	115
Brighton ..... "	2,206	48,431	855,829	391,950	1,222,054	1,150	.....
Cramahe ..... "	2,232	46,939	764,075	380,575	1,113,380	9,875	.....
Haldimand ..... "	3,406	76,950	1,075,000	498,695	1,533,695	6,100	1,400
Hamilton ..... "	3,462	62,467	1,365,335	792,220	2,101,555	10,675	2,025
Monaghan, S..... "	884	18,195	518,690	159,650	666,340	1,595	500
Murray ..... "	2,643	47,943	822,250	398,200	1,179,450	6,300	3,700
Percy ..... "	2,621	51,414	764,111	280,775	984,576	16,466	1,900
Seymour ..... "	2,601	67,000	794,943	383,022	1,140,190	6,866	200
Totals.... 1910	20,872	437,462	7,210,493	3,488,102	10,383,015	64,547	9,840
Totals.... 1909	21,205	436,675	7,226,930	3,420,249	10,352,154	74,716	8,234
Brighton .....Vill.	1,265	2,706	208,152	320,330	510,982	21,425	.....
Colborne..... "	1,062	1,069	90,760	263,910	327,430	24,380	3,776
Hastings ..... "	757	559	78,474	208,875	240,299	18,176	8,850
Campbellford ...Tn.	3,028	600	263,925	686,350	875,975	102,458	14,150
Cobourg ..... "	5,528	2,417	588,929	1,425,110	1,565,839	192,158	29,665
Totals.... 1910	11,640	7,351	1,230,240	2,904,575	3,520,525	358,597	56,441
Totals.... 1909	11,078	7,351	1,127,710	2,736,254	3,412,114	322,126	73,425
ONTARIO;							
Brock .....Tp.	3,213	66,331	1,963,456	836,279	2,723,035	17,049	.....
Mara ..... "	2,754	61,305	1,206,045	455,525	1,624,670	15,332	2,100
Pickering..... "	4,721	71,802	2,398,779	992,635	3,301,214	31,070	13,015
Rama ..... "	1,065	35,841	151,714	81,370	223,934	10,867	1,407
Reach ..... "	2,981	63,558	1,569,132	509,360	2,041,392	7,550	1,385
Scott ..... "	1,814	49,316	1,040,957	365,595	1,380,002	3,850	6
Scugog ..... "	416	9,597	199,650	92,915	284,790	250	.....
Thorah ..... "	1,192	32,200	826,112	340,555	1,156,567	3,765	.....
Uxbridge ..... "	2,299	51,930	692,931	322,400	983,631	2,600	.....
Whitby, E..... "	2,644	32,025	1,123,285	589,200	1,669,485	29,830	3,500
Whitby ..... "	1,781	30,531	1,067,670	461,974	1,498,394	8,450	2,200
Totals.... 1910	24,880	504,436	12,239,731	5,047,808	16,887,114	130,613	23,613
Totals.... 1909	25,239	504,551	12,216,615	5,003,823	16,818,713	131,145	23,927
Beaverton .....Vill.	1,003	456	62,236	308,857	310,693	20,307	5,100
Cannington ..... "	1,030	460	79,755	278,480	331,735	39,730	5,650
Port Perry ..... "	1,254	650	73,715	377,865	404,655	49,655	25,790
Oshawa .....Tn.	6,318	2,400	400,560	1,533,020	1,812,580	172,047	49,369
Uxbridge ..... "	1,596	500	63,280	466,675	446,155	47,515	6,425
Whitby ..... "	2,301	3,600	303,699	840,355	845,489	57,245	34,443
Totals.... 1910	13,502	8,066	983,245	3,805,252	4,151,307	386,499	126,777
Totals.... 1909	13,420	8,270	984,482	3,664,270	4,074,462	392,811	119,707
OXFORD:							
Blandford .....Tp.	1,410	29,656	913,240	374,735	1,260,275	8,540	3,150
Blenheim ..... "	4,034	66,906	2,033,159	1,164,600	3,129,759	27,600	4,875
Dereham ..... "	3,597	64,927	2,359,081	1,083,250	3,245,981	19,924	3,200
Nissouri, E..... "	2,419	46,532	1,968,905	803,340	2,748,695	18,425	1,616
Norwich, N..... "	2,166	33,893	1,228,900	484,800	1,686,200	11,500	5,300
Norwich, S..... "	2,105	36,730	749,181	410,161	1,139,067	9,840	2,100
Oxford, E..... "	1,864	34,673	1,138,475	429,603	1,550,738	7,750	3,012

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed.					Municipalities.
			Municipal.	School.	Total.	Total per head.	Mills on $.	
$	$	$	$	$	$	$ c.		NORTHUMBERLAND:
447,410	.....	11,500	2,700	2,125	4,825	5 91	10.8	Alnwick.
1,223,204	.....	25,725	7,198	6,261	13,459	6 10	11.0	Brighton.
1,123,255	.....	31,270	9,234	7,525	16,759	7 51	14.9	Cramahe.
1,541,195	.....	40,000	10,545	9,721	20,266	5 95	13.1	Haldimand.
2,114,255	.....	56,000	10,677	9,045	19,722	5 70	9.3	Hamilton.
668,435	.....	12,000	2,660	2,800	5,460	6 18	8.2	Monaghan, S.
1,189,450	.....	41,000	7,374	7,243	14,617	5 53	12.3	Murray.
1,002,942	.....	60,310	7,395	7,259	14,654	5 59	14.6	Percy.
1,147,256	39,875	37,775	11,093	6,707	17,800	6 84	15.5	Seymour.
10,457,402	39,875	315,580	68,876	58,686	127,562	6 11	12.2	Totals.
10,435,104	.....	295,025	64,681	55,742	120,423	5 68	11.5	
532,407	.....	17,500	6,892	2,928	9,820	7 76	18.4	Brighton.
355,586	.....	27,240	3,852	2,649	6,501	6 12	18.3	Colborne.
267,325	.....	47,050	3,981	1,705	5,686	7 51	21.3	Hastings.
992,583	25,000	74,300	16,494	7,811	24,305	8 03	24.5	Campbellford.
1,787,662	128,100	448,200	32,991	16,735	49,726	9 00	27.8	Cobourg.
3,935,563	153,100	614,290	64,210	31,828	96,038	8 25	24.4	Totals.
3,807,665	145,100	451,850	61,824	30,012	91,836	8 29	24.1	
								ONTARIO:
2,740,084	.....	76,700	13,205	8,340	21,545	6 71	7.9	Brock.
1,642,102	.....	36,900	10,283	6,104	16,387	5 95	10.0	Mara.
3,345,299	.....	90,200	18,288	12,739	31,027	6 57	9.3	Pickering.
236,208	.....	9,150	3,885	885	4,770	4 48	20.2	Rama.
2,050,327	.....	37,100	9,236	9,099	18,335	6 15	8.9	Reach.
1,383,858	.....	26,550	7,181	6,481	13,662	7 53	9.9	Scott.
285,040	.....	7,775	1,356	1,580	2,936	7 06	10.3	Scugog.
1,160,332	.....	10,100	5,783	3,078	8,861	7 43	7.6	Thorah.
986,231	.....	31,700	5,587	6,237	11,824	5 14	12.0	Uxbridge.
1,702,815	.....	43,000	10,540	5,948	16,488	6 24	9.7	Whitby, E.
1,509,044	.....	31,250	10,926	5,362	16,288	9 15	10.8	Whitby.
17,041,340	.....	400,425	96,270	65,853	162,123	6 52	9.5	Totals.
16,973,785	.....	401,725	100,530	58,440	158,970	6 30	9.4	
336,100	.....	60,400	3,637	2,117	5,754	5 74	17.1	Beaverton.
377,115	.....	26,500	3,501	2,300	5,801	5 63	15.4	Cannington.
480,100	.....	46,925	9,409	4,320	13,729	10 95	28.6	Port Perry.
2,033,996	19,725	121,000	40,873	19,456	60,329	9 55	29.7	Oshawa.
500,095	.....	83,800	10,088	4,501	14,589	9 14	29.2	Uxbridge.
937,177	23,500	298,565	17,137	8,732	25,869	11 24	27.6	Whitby.
4,664,583	43,225	637,190	84,645	41,426	126,071	9 34	27.0	Totals.
4,586,980	40,285	574,290	86,035	33,704	119,739	8 92	26.1	
								OXFORD:
1,271,965	.....	27,700	10,021	3,970	13,991	9 92	11.0	Blandford.
3,162,234	.....	68,000	19,759	14,844	34,603	8 58	10.9	Blenheim.
3,269,105	.....	196,350	31,036	9,817	40,853	11 36	12.5	Dereham.
2,768,736	.....	23,550	16,148	6,902	23,050	9 53	8.3	Nissouri, E.
1,703,000	.....	27,500	16,407	7,275	23,682	10 93	13.9	Norwich, N.
1,151,007	.....	20,275	10,005	6,264	16,269	7 73	14.1	Norwich, S.
1,561,500	.....	17,340	14,609	6,899	21,508	11 54	13.8	Oxford, E.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
OXFORD.—*Con.*		Acres.	$	$	$	$	$
Oxford, N.....Tp.	1,104	21,075	851,950	273,942	1,114,992	6,750	1,000
Oxford, W..... "	1,832	25,855	1,065,453	384,860	1,429,613	11,759	900
Zorra, E..... "	3,282	57,075	2,902,097	1,152,709	3,801,506	15,860	3,100
Zorra, W..... "	2,458	55,041	2,198,051	736,655	2,908,706	1,275	350
Totals.... 1910	26,271	472,363	17,408,492	7,298,655	24,015,532	139,223	28,603
1909	26,995	471,496	17,371,876	7,230,613	23,946,364	142,406	27,603
Embro.....Vill.	556	1,247	64,102	162,620	195,722	16,577	500
Norwich..... "	1,271	500	75,335	323,180	354,715	30,665	13,845
Tavistock..... "	954	383	94,750	381,020	464,220	55,600	900
Ingersoll.....Tn.	4,847	2,200	551,858	1,312,052	1,763,710	184,900	56,976
Tillsonburg..... "	2,671	1,602	359,105	848,555	1,109,085	88,315	35,210
Totals.... 1910	10,299	5,932	1,145,150	3,027,427	3,887,452	376,057	107,431
1909	10,568	5,941	1,139,367	2,936,940	3,801,132	347,115	107,796
*Woodstock City..... 1910	9,448	1,525	1,120,427	3,266,268	3,805,270	272,050	111,756
1909	9,243	1,525	1,123,466	3,232,948	3,616,664	449,207	117,812
PARRY SOUND:							
Armour.....Tp.	942	38,155	165,729	66,424	227,833	3,808	500
Carling..... "	305	32,294	41,105	17,030	55,725	250	200
Chapman..... "	760	41,913	117,895	76,140	183,875	5,091	.....
Christie..... "	445	21,688	64,270	42,370	101,440	2,273	.....
Foley..... "	592	32,354	81,345	39,990	118,735	1,575	.....
Hagerman..... "	416	22,639	42,780	19,275	54,755	1,330	.....
Himsworth, N.... "	772	17,590	44,778	85,050	123,328	23,770	1,125
Himsworth, S.... "	1,005	50,400	171,085	81,607	246,692	4,500	.....
Humphrey..... "	481	31,288	144,832	166,889	298,646	12,065	.....
Joly..... "	284	23,290	44,426	14,080	58,256	.....	.....
McDougall..... "	480	30,061	91,770	40,486	123,556	.....	.....
McKellar..... "	560	29,899	48,795	26,680	72,245	464	100
McMurrich..... "	638	40,444	110,590	48,555	155,312	4,041	.....
Machar..... "	486	46,283	81,862	10,460	88,812	1,250	.....
Nipissing..... "	699	35,605	76,413	124,500	195,763	3,398	150
Perry..... "	840	43,003	139,695	69,970	201,315	4,955	.....
Ryerson..... "	628	43,391	187,279	49,700	233,429	2,270	.....
Strong..... "	689	38,810	126,500	44,005	168,470	.....	.....
Totals.... 1910	11,022	619,107	1,781,149	1,023,211	708,187	71,040	2,075
1909	11,356	622,296	1,780,250	914,570	2,604,202	72,513	1,050
Burk's Falls....Vill.	940	668	67,183	221,549	261,448	49,334	6,801
South River..... "	548	883	18,820	93,355	105,355	16,765	.....
Sunridge..... "	415	375	50,602	18,070	65,672	6,130	.....
Kearney.....Tn.	369	257	12,724	69,130	73,874	8,867	.....
Parry Sound.... "	3,666	1,300	534,183	950,245	1,305,223	134,445	18,365
Powassan..... "	681	742	37,715	127,870	142,635	17,060	1,300
Totals.... 1910	6,619	4,225	721,227	1,480,199	1,954,207	232,599	26,466
1909	6,418	4,635	672,016	1,444,120	1,882,196	223,718	49,338
PEEL:							
Albion.....Tp.	2,300	56,220	1,194,671	390,015	1,564,486	6,250	200
Caledon..... "	3,447	68,567	1,244,450	595,860	1,786,260	22,025	2,100
Chinguacousy.... "	3,282	80,024	2,905,195	1,101,140	3,949,315	13,615	9,270

*Population for 1909 used for Norwich Village, the returns for 1910 not having been received.

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed.					Municipalities.
			Municipal.	School.	Total.	Total per head.	Mills on $.	
$	$	$	$	$	$	$ c.		OXFORD.—*Con.*
1,122,742	.....	10,900	6,275	3,359	9,634	8 73	8.6	Oxford, N.
1,442,272	10,000	20,700	10,135	4,801	14,936	8 15	10.4	Oxford, W.
3,820,466	.....	253,300	23,707	8,203	31,910	9 72	8.4	Zorra, E.
2,910,331	.....	26,000	23,023	6,072	29,095	11 84	10.0	Zorra, W.
24,183,358	10,000	691,615	181,125	78,406	259,531	9 88	10.7	Totals.
24,116,373	12,600	656,125	162,327	72,464	234,791	8 70	9.7	
212,799	.....	31,000	3,092	1,700	4,792	8 62	22.5	Embro.
399,225	2,100	43,800	8,031	4,301	12,332	9 70	30.9	Norwich.
520,720	.....	11,550	3,303	2,246	5,549	5 82	10.7	Tavistock.
2,005,586	15,000	100,200	39,689	17,695	57,384	11 84	28.6	Ingersoll.
1,232,610	27,800	98,575	21,909	6,412	28,321	10 60	23.0	Tillsonburg.
4,370,940	44,900	285,125	76,024	32,354	108,378	10 52	24.8	Totals.
4,256,043	51,450	275,175	76,745	27,011	103,756	9 82	24.4	
4,189,076	2,000	581,425	63,243	30,581	93,824	9 93	22.4	*Woodstock .
4,183,683	2,000	739,750	63,059	28,037	91,096	9 86	21.8	
								PARRY SOUND:
232,141	.....	4,320	2,163	2,141	4,304	4 57	18.5	Armour.
56,175	.....	2,410	411	793	1,204	3 95	21.4	Carling.
188,966	.....	10,160	1,431	1,625	3,056	4 02	16.2	Chapman.
103,713	.....	5,200	384	1,187	1,571	3 53	15.1	Christie.
120,310	.....	2,600	1,097	894	1,991	3 36	16.5	Foley.
56,085	.....	7,300	421	1,210	1,631	3 93	29.1	Hagerman.
148,223	.....	6,500	1,273	2,876	4,149	5 37	28.0	Himsworth, N.
251,192	.....	6,000	1,251	3,477	4,728	4 70	18.8	Himsworth, S.
310,711	.....	13,075	1,438	2,820	4,258	8 85	13.7	Humphrey.
58,256	.....	250	544	449	993	3 50	17.0	Joly.
123,556	.....	8,700	1,203	1,367	2,570	5 35	20.8	McDougall.
72,809	.....	3,230	546	1,542	2,088	3 73	28.7	McKellar.
159,353	.....	3,833	1,035	1,461	2,496	3 91	15.7	McMurrich.
90,062	.....	3,510	925	1,571	2,496	5 14	27.7	Machar.
199,311	.....	5,150	783	1,719	2,502	3 58	12.6	Nipissing.
206,270	.....	8,350	1,373	2,507	3,880	4 62	18.8	Perry.
235,699	.....	3,550	931	1,644	2,575	4 10	10.9	Ryerson.
168,470	.....	2,035	1,113	1,372	2,485	3 61	14.8	Strong.
781,302	.....	96,173	18,322	30,655	48,977	4 44	17.6	Totals.
2,677,765	.....	90,618	17,449	29,713	47,162	4 15	17.6	
317,583	26,690	27,284	4,693	3,569	8,262	8 79	26.0	Burk's Falls.
122,118	.....	6,800	1,008	1,495	2,503	4 57	20.5	South River.
71,802	2,000	3,000	1,006	934	1,940	4 67	27.0	Sundridge.
82,741	.....	7,980	585	1,075	1,660	4 50	20.1	Kearney.
1,458,033	31,765	179,205	25,065	12,977	38,042	10 38	26.1	Parry Sound.
160,995	.....	22,950	1,619	2,091	3,710	5 45	23.0	Powassan.
2,213,272	60,455	247,219	33,976	22,141	56,117	8 48	25.4	Totals.
2,155,252	53,845	233,940	26,737	22,239	48,976	7 63	22.7	
								PEEL:
1,570,936	.....	20,200	9,331	6,659	15,990	6 95	10.2	Albion.
1,810,385	.....	54,050	12,946	10,241	23,187	6 73	12.8	Caledon.
3,972,200	.....	57,020	20,730	9,898	30,628	9 33	7.7	Chinguacousy.

*The statistics for 1909 are used for Perry Tp., the return for 1910 not having been received.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding Buildings.	Buildings.	Real property.	Business assessment.	Income.
PEEL—*Con.*		Acres.	$	$	$	$	$
Toronto ..... Tp.	5,313	64,857	2,371,080	1,014,185	3,314,415	32,550	2,150
Toronto Gore ..... "	827	19,009	595,570	215,660	795,530	3,250	200
Totals 1910	15,169	288,677	8,310,966	3,316,860	11,410,006	77,690	13,920
1909	15,558	289,962	8,171,451	3,285,787	11,239,718	72,424	14,567
Bolton ..... Vill.	692	500	47,375	192,975	215,800	19,602	8,565
Streetsville .... "	549	435	44,955	179,480	183,685	15,586	900
Brampton ..... Tn.	3,201	1,193	357,955	1,239,115	1,431,070	112,665	41,272
Totals 1910	4,442	2,128	450,285	1,611,570	1,830,555	147,853	50,737
1909	4,456	2,126	375,838	1,395,383	1,600,321	134,846	56,191
PERTH:							
Blanshard ..... Tp.	2,242	45,973	1,989,627	546,675	2,509,952	3,200	2,000
Downie ..... "	2,489	48,568	1,999,050	755,400	2,730,450	8,910	600
Easthope, N. ..... "	1,964	43,120	1,663,447	737,338	2,371,235	6,623	4,615
Easthope, S. ..... "	1,316	23,525	1,123,298	529,600	1,639,398	8,667	.....
Ellice ..... "	2,903	54,455	1,871,080	582,470	2,378,895	7,940	.....
Elma ..... "	3,532	67,435	2,510,580	1,055,545	3,531,625	29,009	900
Fullarton ..... "	1,879	40,269	1,729,910	591,750	2,281,835	5,100	350
Hibbert ..... "	2,026	41,335	1,577,530	589,169	2,116,199	8,750	200
Logan ..... "	2,673	53,774	1,966,863	840,590	2,727,133	5,225	1,400
Mornington ..... "	2,754	49,820	1,510,944	826,010	2,266,354	13,850	.....
Wallace ..... "	2,361	49,970	1,293,650	732,900	1,993,950	3,050	.....
Totals 1910	26,139	518,244	19,235,979	7,787,447	26,547,026	100,324	10,065
1909	26,471	518,322	19,281,832	7,684,836	26,535,113	99,570	8,185
Milverton ..... Vill.	782	477	81,575	268,175	307,750	26,275	4,550
Listowel ..... Tn.	2,275	1,500	189,401	694,280	835,231	97,786	4,400
Mitchell ..... "	1,776	1,400	226,440	529,940	681,690	81,961	18,878
Totals 1910	4,833	3,377	497,416	1,492,395	1,824,671	206,022	27,828
1909	5,238	3,370	494,890	1,448,455	1,775,705	193,870	26,792
*St. Mary's Town 1910	3,412	2,683	565,290	1,362,560	1,525,250	123,416	32,991
1909	3,520	2,730	346,600	1,351,515	1,365,115	110,023	31,815
*Stratford City 1910	14,848	2,835	1,971,455	5,607,885	6,202,315	533,680	178,377
1909	14,779	2,835	1,898,475	5,395,420	5,948,470	527,945	159,535
PETERBOROUGH:							
Asphodel ..... Tp.	1,542	37,800	703,860	185,045	875,305	4,000	.....
Belmont and M .. "	1,609	78,080	154,309	74,810	220,319	750	.....
Burleigh and A .. "	614	31,777	74,226	36,290	104,831	4,650	.....
Chandos ..... "	720	43,831	66,521	25,850	84,171	905	.....
Douro ..... "	1,558	38,425	692,169	123,350	800,069	2,165	.....
Dummer ..... "	1,450	69,776	528,615	119,870	637,285	.....	.....
Ennismore ..... "	763	17,269	276,120	133,090	355,210	1,600	.....
Galway and C .... "	976	51,700	40,000	15,000	51,500	500	.....
Harvey ..... "	835	67,500	182,982	35,825	208,302	396	.....
Monaghan, N. .... "	1,379	14,046	499,343	237,600	721,343	.....	.....
Otonabee ..... "	2,578	64,081	1,600,481	432,355	2,011,986	7,470	.....
Smith ..... "	2,477	57,798	1,223,600	473,860	1,623,650	.....	.....
Totals 1910	16,501	572,083	6,042,226	1,892,945	7,693,971	22,436	.....
1909	16,905	572,941	6,060,940	1,855,091	7,679,106	33,707	.....

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $	Municipalities.
$	$	$	$	$	$	$ c.		PEEL—*Con.*
3,349,115	.....	70,850	25,013	12,738	37,751	7 11	11.3	Toronto.
798,980	.....	15,700	5,689	2,410	8,099	9 79	10.1	Toronto Gore.
11,501,616	.....	217,820	73,709	41,946	115,655	7 62	10.1	Totals.
11,326,709	.....	217,520	66,585	40,606	107,191	6 89	9.5	
243,967	.....	24,550	3,304	1,151	4,455	6 44	18.3	Bolton.
200,171	.....	40,750	3,805	1,462	5,267	9 59	26.3	Streetsville.
1,585,007	42,150	166,000	33,458	9,100	42,558	13 30	26.9	Brampton.
2,029,145	42,150	231,300	40,567	11,713	52,280	11 77	25.8	Totals.
1,791,358	42,150	170,900	36,216	12,174	48,390	10 86	27.0	
								PERTH:
2,515,152	.....	26,350	16,124	6,061	22,185	9 90	8.8	Blanshard.
2,739,960	.....	24,000	15,550	5,756	21,306	8 56	7.8	Downie.
2,382,473	.....	29,550	14,253	2,614	16,867	8 59	7.1	Easthope, N.
1,648,065	.....	13,500	7,676	3,752	11,428	8 68	6.9	Easthope, S.
2,386,835	.....	74,655	20,314	8,004	28,318	9 75	11.9	Ellice.
3,561,534	.....	34,500	27,961	8,569	36,530	10 34	10.3	Elma.
2,287,285	.....	39,825	15,238	4,663	19,901	10 59	8.7	Fullarton.
2,125,149	.....	50,500	13,437	5,742	19,179	9 47	9.0	Hibbert.
2,733,758	.....	80,320	18,046	7,986	26,032	9 74	9.5	Logan.
2,280,204	.....	70,600	19,179	7,013	26,192	9 51	11.5	Mornington.
1,997,000	.....	32,600	10,697	7,153	17,850	7 56	8.9	Wallace.
26,657,415	.....	476,400	178,475	67,313	245,788	9 40	9.2	Totals.
26,642,868	.....	431,555	169,681	66,034	235,715	8 90	8.8	
338,575	5,500	42,000	4,162	2,000	6,162	7 88	18.2	Milverton.
937,417	12,000	48,450	17,583	8,329	25,912	11 39	27.6	Listowel.
782,529	.....	74,690	14,597	6,011	20,608	11 60	26.5	Mitchell.
2,058,521	17,500	165,140	36,342	16,340	52,682	10 90	25.6	Totals.
1,996,367	18,500	167,640	35,499	15,126	50,625	9 66	25.4	
1,681,657	.....	402,600	25,467	13,066	38,533	11 29	22.9	*St. Mary's.
1,506,953	.....	333,000	29,159	8,951	38,110	10 83	25.3	
6,914,372	166,800	1,377,025	138,101	54,764	192,865	12 99	27.9	*Stratford.
6,635,950	89,800	1,345,425	131,766	41,492	173,258	11 72	26.1	
								PETERBOROUGH:
879,305	.....	13,600	6,765	5,322	12,087	7 84	13.7	Asphodel.
221,069	.....	8,800	2,936	3,557	6,493	4 04	29.4	Belmont and M.
109,481	.....	5,685	1,387	1,635	3,022	4 92	27.6	Burleigh and A.
85,076	.....	8,200	1,351	1,804	3,155	4 38	37.1	Chandos.
802,234	.....	15,450	5,857	4,676	10,533	6 76	13.1	Douro.
637,285	.....	11,200	4,099	4,448	8,547	5 89	13.4	Dummer.
356,810	.....	54,000	3,124	1,980	5,104	6 69	14.3	Ennismore.
52,000	.....	3,500	659	1,069	1,728	1 77	33.2	Galway and C.
208,698	.....	10,505	2,237	2,618	4,855	5 81	23.3	Harvey.
721,343	28,000	15,600	4,184	2,623	6,807	4 94	9.4	Monaghan, N.
2,019,456	.....	20,850	12,790	7,830	20,620	8 00	10.2	Otonabee.
1,623,650	.....	73,810	9,794	6,549	16,343	6 60	10.1	Smith.
7,716,407	28,000	241,200	55,183	44,111	99,294	6 02	12.9	Totals.
7,712,813	42,000	236,925	53,126	44,288	97,414	5 76	12.6	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
PETERBOROUGH—*Con.*		Acres.	$	$	$	$	$
Havelock.....Vill.	1,375	345	52,295	282,848	315,143	10,337	4,450
Lakefield ..... "	1,378	478	144,660	384,390	487,050	70,755	4,625
Norwood ..... "	812	398	53,875	250,640	228,265	17,600	3 200
Totals.... 1910	3,565	1,221	250,830	917,878	1,030,458	98,692	12,275
Totals.... 1909	3,735	1,335	247,290	940,585	1,036,575	94,105	12,599
*Peterborough City.... 1910	16,923	2,808	3,933,448	5,957,824	7,870,218	712,145	232,660
*Peterborough City.... 1909	16,907	2,808	3,807,278	5,498,567	7,717,121	707,117	166,880
PRESCOTT:							
Alfred .....Tp.	3,210	43,552	1,146,950	319,575	1,358,225	20,285	2,965
Caledonia..... "	1,849	43,163	791,409	259,050	1,037,959	16,020	600
Hawkesbury, E... "	4,022	56,374	301,985	170,250	449,735	2,175	.....
Hawkesbury, W.. "	1,301	28,890	449,952	203,975	642,627	.....	.....
Longueuil ..... "	1,083	18,571	368,200	99,000	457,200	.....	.....
Plantagenet, N... "	3,893	50,758	803,705	404,485	1,098,190	25,975	1,100
Plantagenet, S... "	3,190	48,973	849,600	206,400	1,003,350	10,325	4,300
Totals.... 1910	18,548	290,281	4,711,801	1,662,735	6,047,286	74,780	8,965
Totals.... 1909	18,591	293,403	4,689,905	1,706,114	6,040,819	70,780	13,555
L'Orignal .....Vill.	1,246	4,050	171,921	270,429	357,850	13,900	9,482
Hawkesbury....Tn.	4,294	1,704	286,595	680,250	765,345	86,531	15,163
Vankleek Hill... "	1,631	620	118,525	424,020	448,545	42,451	5,608
Totals.... 1910	7,171	6,374	577,041	1,374,699	1,571,740	142,882	30,253
Totals.... 1909	7,411	6,374	477,977	1,319,934	1,415,511	110,898	19,977
PRINCE EDWARD:							
Ameliasburg.....Tp.	2,389	44,447	988,985	318,235	1,257,220	550	.....
Athol ..... "	996	23,377	323,260	126,725	445,385	.....	.....
Hallowell ..... "	2,418	43,708	808,753	348,610	1,123,713	480	700
Hillier ..... "	1,451	31,890	643,235	237,735	862,770	8,260	.....
Marysburg, N.... "	1,012	23,627	393,360	110,390	477,950	8,850	.....
Marysburg, S.... "	1,028	24,490	367,145	177,040	527,410	8,350	700
Sophiasburg ..... "	1,903	43,100	702,344	338,981	1,010,575	275	.....
Totals.... 1910	11,197	234,639	4,227,082	1,657,716	5,705,023	26,765	1,400
Totals.... 1909	10,928	233,837	4,189,535	1,675,300	5,687,720	23,205	1,500
Bloomfield.....Vill.	647	415	47,460	139,285	160,045	10,770	800
Wellington ..... "	845	1,500	100,450	209,800	289,900	10,750	200
Picton..... Tn.	3,532	552	431,815	1,443,560	1,589,075	134,525	28,390
Totals.... 1910	5,024	2,467	579,725	1,783,645	2,039,020	156,045	29,390
Totals.... 1909	5,215	2,467	582,055	1,739,340	2,010,520	162,172	31,050
RAINY RIVER:							
Alberton .....Tp.	285	24,498	133,245	9,651	140,895	1,550	.....
Atwood and C.... "	217	8,077	57,905	10,376	67,281	960	.....
Chapple ..... "	889	73,630	223,024	25,779	245,788	2,966	.....
Dilke..... "	251	7,876	45,933	21,963	67,896	2,975	.....
Emo ..... "	757	42,999	202,980	75,820	272,500	6,350	700
Lavallee ..... "	709	52,837	240,230	41,535	277,265	2,450	.....
Melgrave ..... "	27	5,221	158,610	2,200	160,810	.....	.....

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed.					Municipalities.
			Municipal.	School.	Total.	Total per head.	Mills on $.	
$	$	$	$	$	$	$ c.		PETERBOROUGH—*Con.*
329,930	.....	20,000	3,661	4,293	7,954	5 78	24.2	Havelock.
562,430	72,800	42,000	5,937	5,343	11,280	8 19	20.1	Lakefield.
249,065	.....	76,250	3,255	3,198	6,453	7 95	25.9	Norwood.
1,141,425	72,800	138,250	12,853	12,834	25,687	7 21	22.5	Totals.
1,143,279	77,518	151,300	14,279	12,783	27,062	7 25	23.7	
8,815,023	176,980	2,021,054	127,778	83,102	210,880	12 46	23.9	*Peterborough.
8,591,118	164,330	1,588,724	106,102	76,805	182,907	10 82	21.3	
								PRESCOTT:
1,381,475	.....	108,300	4,981	7,500	12,481	3 89	9.0	Alfred.
1,054,579	.....	12,500	3,522	5,601	9,123	4 93	8.7	Caledonia.
451,910	.....	22,500	8,036	10,156	18,192	4 52	4.0	Hawkesbury, E.
642,627	.....	11,300	5,866	4,284	10,150	7 80	15.8	Hawkesbury, W.
457,200	.....	10,000	1,501	2,665	4,166	3 85	9.1	Longueuil.
1,125,265	.....	110,000	6,172	10,509	16,681	4 28	14.8	Plantagenet, N.
1,017,975	.....	52,650	5,700	8,870	14,570	4 57	14.3	Plantagenet, S.
6,131,031	.....	327,250	35,778	49,585	85,363	4 60	13.9	Totals.
6,125,154	.....	355,200	34,735	44,488	79,223	4 26	12.9	
381,232	.....	84,500	2,796	2,636	5,432	4 36	14.2	L'Orignal.
867,039	.....	201,500	21,431	6,911	28,342	6 60	32.7	Hawkesbury.
496,604	.....	94,000	4,415	6,420	10,835	6 64	21.8	Vankleek Hill.
1,744,875	.....	380,000	28,642	15,967	44,609	6 22	25.6	Totals.
1,546,386	.....	382,400	22,184	17,122	39,306	5 30	25.4	
								PRINCE EDWARD:
1,257,770	.....	50,000	7,720	6,559	14,279	5 98	11.4	Ameliasburg.
445,385	.....	4,600	2,983	2,763	5,746	5 77	12.9	Athol.
1,124,893	.....	33,650	8,945	7,159	16,104	6 66	14.3	Hallowell.
871,030	.....	18,200	5,441	5,153	10,594	7 30	12.2	Hillier.
486,800	.....	25,800	3,920	3,228	7,148	7 06	14.7	Marysburg, N.
536,460	.....	16,775	3,155	2,709	5,864	5 70	10.9	Marysburg, S.
1,010,850	.....	30,750	9,964	1,791	11,755	6 18	11.6	Sophiasburg.
5,733,188	.....	179,775	42,128	29,362	71,490	6 38	12.5	Totals.
5,712,425	.....	177,115	41,033	23,822	64,855	5 93	11.4	
171,615	.....	17,700	1,819	1,063	2,882	4 45	16.8	Bloomfield.
300,850	.....	20,350	3,216	1,202	4,418	5 23	14.7	Wellington.
1,751,990	.....	286,300	19,610	13,247	32,857	9 30	18.8	Picton.
2,224,455	.....	324,350	24,645	15,512	40,157	7 99	18.1	Totals.
2,203,742	.....	310,875	20,386	20,758	41,144	7 89	18.7	
								RAINY RIVER:
142,445	5,900	2,001	2,349	897	3,246	11 39	22.8	Alberton.
68,241	.....	1,000	1,816	165	1,981	9 13	29.0	Atwood and C.
248,754	29,562	3,015	4,404	2,967	7,371	8 29	29.6	Chapple.
70,871	670	2,130	1,494	582	2,076	8 28	29.3	Dilke.
279,550	14,450	6,300	4,052	3,505	7,557	9 98	27.0	Emo.
279,715	9,150	4,500	4,160	2,634	6,794	9 58	24.3	Lavallee.
160,810	.....	none	3,159	483	3,642	134 89	22.6	McIrvine.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
RAINY RIVER.—*Con.*		Acres.	$	$	$	$	$
Morley and P....Tp.	453	36,271	122,753	44,512	162,440	5,135	.....
Worthington and B "	308	26,955	130,501	28,201	157,502	.....	.....
Totals.... 1910	3,896	278,364	1,315,181	262,167	1,552,377	22,386	700
1909	3,770	276,998	1,307,049	254,723	1,537,242	16,805	700
Fort Frances ....Tn.	1,524	750	873,357	627,765	1,421,632	47,360	7,900
Rainy River..... "	1,875	700	140,270	424,221	523,941	116,117	36,850
Totals.... 1910	3,399	1,450	1,013,627	1,051,986	1,945,573	163,477	44,750
1909	3,041	1,450	919,902	743,041	1,557,092	183,802	64,939
RENFREW:							
Admaston .....Tp.	1,874	72,305	679,233	112,715	781,590	1,505	.....
Algona, S..... "	701	30,542	72,990	39,710	105,300	2,800	.....
Alice and Fraser. "	1,967	58,295	399,680	182,765	571,050	2,450	.....
Bagot and B..... "	1,160	61,640	100,967	54,366	147,933	4,150	200
Bromley ..... "	1,773	49,685	1,002,633	348,675	1,295,708	8,250	400
Brougham..... "	489	23,457	39,090	39,710	76,600	665	.....
Brudenell and L.. "	1,242	64,522	128,620	74,265	185,735	2,300	.....
Grattan..... "	1,877	63,725	191,435	136,125	291,110	3,150	.....
Griffith and M.... "	592	26,589	37,376	19,302	55,371	550	.....
Hagarty and R. .. "	2,206	60,417	192,910	194,675	364,885	5,975	.....
Head, etc..... "	348	16,085	28,432	38,822	62,054	2,100	.....
Horton ..... "	1,361	38,314	376,478	165,330	533,378	500	.....
McNab ..... "	3,443	62,705	793,348	366,258	1,132,006	39,439	6,745
Pembroke..... "	1,074	8,310	206,679	113,145	316,374	335	800
Petewawa & McK. "	807	19,656	44,301	31,973	71,349	824	.....
Radcliffe..... "	362	22,622	22,095	25,055	44,350	2,465	.....
Raglan..... "	728	35,485	28,340	34,475	59,175	.....	.....
Rolph, etc..... "	913	34,128	72,525	100,100	162,860	1,700	2,300
Ross..... "	1,859	52,149	637,350	264,250	887,875	1,500	.....
Sebastopol..... "	595	33,074	38,108	21,815	57,243	400	.....
Sherwood, J. & B. "	1,363	46,446	94,349	89,941	174,940	7,650	.....
Stafford..... "	1,061	21,324	646,436	58,370	697,806	600	.....
Westmeath..... "	2,893	69,841	1,298,812	463,742	1,730,304	9,980	800
Wilberforce, etc.. "	2,226	72,160	399,473	164,300	543,578	3,400	.....
Totals.... 1910	32,914	1,043,476	7,531,660	3,139,884	10,348,574	102,688	11,245
1909	33,420	1,040,984	7,518,458	3,176,562	10,379,263	102,483	11,968
Cobden.....Vill.	754	469	90,450	184,950	256,800	17,352	1,100
Eganville..... "	1,163	310	87,885	317,425	303,460	43,972	9,768
Arnprior .....Tn.	4,317	1,121	369,620	815,375	1,065,495	122,675	18,507
Pembroke..... "	5,550	625	878,597	1,910,168	2,355,165	278,385	51,080
Renfrew..... "	3,689	2,400	441,324	951,610	1,189,184	141,484	22,512
Totals.... 1910	15,473	4,925	1,867,876	4,179,528	5,170,104	603,868	102,967
1909	15,597	5,002	2,194,676	3,715,299	5,088,475	543,433	97,557
RUSSELL:							
Cambridge.....Tp.	3,231	59,012	817,371	266,265	1,044,736	5,200	.....
Clarence ..... "	4,628	70,706	909,457	239,776	1,124,608	9,700	.....
Cumberland..... "	3,798	74,223	1,409,637	329,990	1,684,327	8,206	.....
Russell ..... "	3,410	46,614	1,085,010	572,850	1,562,360	12,900	.....
Totals.... 1910	15,067	250,555	4,221,475	1,408,881	5,416,031	36,006	.....
1909	15,270	251,080	4,114,385	1,445,597	5,345,657	36,030	.....

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed.					Municipalities.
			Municipal.	School.	Total.	Total per head.	Mills on $.	
$	$	$	$	$	$	$ c.		RAINY RIVER.—*Con.*
167,575	5,200	4,825	2,768	1,981	4,749	10 48	28.3	Morley and P.
157,502	8,408	1,200	1,903	1,291	3,194	10 37	20.3	Worthington and B.
1,575,463	73,340	24,971	26,105	14,505	40,610	10 42	25.8	Totals.
1,554,747	78,039	24,530	21,277	14,097	35,374	9 38	22.8	
1,476,892	7,360	79,490	18,924	4,265	23,189	15 22	15.7	Fort Frances.
676,908	144,658	40,550	12,089	6,515	18,604	9 92	27.5	Rainy River.
2,153,800	152,018	120,040	31,013	10,780	41,793	12 30	19.4	Totals.
1,805,833	218,178	105,851	19,729	13,798	33,527	11 02	18.6	
								RENFREW:
783,095	.....	10,358	3,102	4,258	7,360	3 93	9.4	Admaston.
108,100	.....	7,400	644	1,151	1,795	2 56	16.6	Algona, S.
573,500	.....	11,395	1,794	4,153	5,947	3 02	10.4	Alice and Fraser.
152,283	.....	7,400	1,260	2,628	3,888	3 35	25.5	Bagot and B.
1,304,358	.....	55,600	6,749	5,123	11,872	6 70	9.1	Bromley.
77,265	.....	2,200	371	821	1,192	2 44	15.4	Brougham.
188,035	.....	17,150	935	1,925	2,860	2 30	15.2	Brudenell and L.
294,260	.....	36,450	1,237	3,154	4,391	2 34	14.9	Grattan.
55,921	.....	1,307	425	575	1,000	1 69	17.9	Griffith and M.
370,860	.....	22,700	2,226	3,636	5,862	2 66	15.8	Hagarty and R.
64,154	.....	5,200	907	900	1,807	5 19	28.2	Head, etc.
533,878	.....	8,430	2,183	3,419	5,602	4 12	10.5	Horton.
1,178,190	.....	27,600	7,975	8,072	16,047	4 66	13.6	McNab.
317,509	.....	3,450	1,412	1,521	2,933	2 73	9.2	Pembroke.
72,173	.....	4,925	391	959	1,350	1 67	18.7	Petewawa and McK
46,815	.....	2,800	520	818	1,338	3 70	28.6	Radcliffe.
59,175	.....	3,640	1,174	1,844	3,018	4 15	51.0	Raglan.
166,860	.....	9,765	499	2,425	2,924	3 20	17.5	Rolph, etc.
889,375	.....	13,725	5,242	6,229	11,471	6 17	12.9	Ross.
57,643	.....	2,680	530	873	1,403	2 36	24.3	Sebastopol.
182,590	.....	9,350	1,040	2,141	3,181	2 33	17.4	Sherwood, J. & B.
698,406	.....	7,000	2,095	2,237	4,332	4 08	6.2	Stafford.
1,741,084	.....	32,250	6,908	10,057	16,965	5 86	9.7	Westmeath.
546,978	.....	20,195	2,632	4,699	7,331	3 29	13.4	Wilberforce, etc.
10,462,507	.....	322,970	52,251	73,618	125,869	3 82	12.0	Totals.
10,493,714	.....	315,757	49,841	68,590	118,431	3 54	11.3	
275,252	.....	18,600	1,617	2,147	3,764	4 99	13.7	Cobden.
357,200	.....	101,850	4,147	4,653	8,800	7 57	24.6	Eganville.
1,206,677	.....	119,500	27,199	16,347	43,546	10 09	36.1	Arnprior.
2,684,630	.....	433,600	32,633	20,550	53,183	9 58	19.8	Pembroke.
1,353,180	114,200	203,750	23,381	13,500	36,881	10 00	27.3	Renfrew.
5,876,939	114,200	877,300	88,977	57,197	146,174	9 45	24.9	Totals.
5,729,465	70,450	821,500	86,745	49,317	136,062	8 72	23.7	
								RUSSELL:
1,049,936	.....	38,900	10,148	8,441	18,589	5 75	17.7	Cambridge.
1,134,308	.....	24,625	8,967	12,634	21,601	4 67	19.0	Clarence.
1,692,533	.....	55,300	16,223	11,497	27,720	7 30	16.4	Cumberland.
1,575,260	.....	95,500	16,012	10,566	26,578	7 79	16.9	Russell.
5,452,037	.....	214,325	51,350	43,138	94,488	6 27	17.3	Totals.
5,381,687	.....	214,325	48,296	37,713	86,009	5 63	16.0	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
RUSSELL—*Con.*			$	$	$		
Casselman.....Vill.	753	1,200	39,400	106,165	122,465	7,120	.....
Rockland.....Tn.	3,028	700	68,830	336,270	311,600	.....	.....
Totals.... 1910	3,781	1,900	108,230	442,435	434,065	7,120	.....
Totals.... 1909	3,677	1,900	108,655	385,450	429,055	6,305	.....
SIMCOE:							
Adjala .....Tp.	2,160	46,208	1,244,935	441,610	1,643,825	1,250	.....
Essa ..... "	2,937	67,000	1,496,306	444,600	1,920,216	10,737	3,659
Flos..... "	3,037	63,650	1,460,455	572,140	1,985,295	26,403	3,821
Gwillimbury, W.. "	2,114	46,840	1,436,490	539,045	1,948,835	3,525	.....
Innisfil..... "	3,148	68,828	1,964,117	485,135	2,432,227	7,281	700
Matchedash ..... "	429	33,642	83,154	35,587	115,491	.....	.....
Medonte..... "	3,837	66,167	854,245	358,645	1,186,530	9,450	1,000
Nottawasaga .... "	4,445	90,077	1,862,314	776,400	2,576,214	9,525	.....
Orillia ..... "	3,220	77,555	416,912	236,194	627,456	15,210	1,841
Oro ..... "	3,322	73,240	1,086,098	554,580	1,577,678	4,150	.....
Sunnidale ..... "	2,299	58,110	609,196	388,312	960,773	3,193	.....
Tay..... "	5,907	46,841	977,250	1,176,950	2,111,450	103,900	7,600
Tecumseth ..... "	2,703	66,102	2,390,120	1,063,285	3,385,890	5,750	4,710
Tiny ..... "	3,508	79,086	997,770	343,645	1,315,885	3,083	.....
Tossorontio..... "	1,489	44,497	693,345	79,860	748,805	3,150	128
Vespra..... "	2,297	63,210	1,076,024	342,175	1,388,199	7,150	.....
Totals.... 1910	46,852	991,053	18,648,731	7,838,163	25,924,769	213,757	23,459
Totals.... 1909	47,173	983,773	18,448,571	7,525,290	25,460,506	286,209	22,556
Beeton .....Vill.	702	475	43,325	179,325	200,950	16,514	4,595
Bradford ..... "	971	1,700	91,320	251,450	314,570	20,605	5,555
Coldwater ..... "	596	350	62,000	170,275	214,775	19,302	9,585
Creemore..... "	599	501	37,800	155,225	182,975	21,994	2,050
Tottenham ..... "	494	400	42,300	203,625	219,975	11,125	1,150
Alliston .....Tn.	1,189	500	108,847	398,499	459,146	36,470	2,732
Barrie ..... "	6,575	2,550	921,420	2,381,575	2,984,995	225,957	34,666
Collingwood ..... "	7,291	4,440	1,107,760	1,893,927	2,652,837	203,000	37,779
Midland..... "	4,232	582	675,620	1,149,775	1,670,795	141,290	37,864
Orillia ..... "	5,703	1,600	710,727	1,442,658	1,884,235	196,444	38,945
Penetanguishene. "	3,554	1,717	262,235	1,156,000	831,935	130,888	6,792
Stayner ..... "	1,022	1,157	68,470	270,810	298,480	24,407	3,425
Totals.... 1910	32,928	15,972	4,131,824	9,653,144	11,915,668	1,047,996	185,138
Totals.... 1909	34,011	15,950	4,257,771	9,232,545	11,482,401	1,077,769	211,230
STORMONT:							
Cornwall .....Tp.	5,604	63,631	797,897	584,204	1,272,101	5,195	.....
Finch..... "	2,795	49,280	859,816	290,750	1,125,566	11,645	.....
Osnabruck..... "	4,597	62,040	1,155,330	880,770	2,003,300	24,800	1,250
Roxborough ..... "	3,634	71,270	1,177,533	498,590	1,631,003	25,440	.....
Totals.... 1910	16,630	246,221	3,990,576	2,254,314	6,031,970	67,080	1,250
Totals.... 1909	17,089	246,550	4,110,958	2,257,527	6,148,510	66,513	1,125
Finch .....Vill.	413	471	27,015	68,670	88,385	4,313	.....
Cornwall.....Tn.	6,242	680	556,837	1,675,432	1,880,274	206,307	31,500
Totals.... 1910	6,655	1,151	583,852	1,744,102	1,968,659	210,620	31,500
Totals.... 1909	6,742	1,147	546,235	1,795,000	1,937,035	185,640	42,866

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	Schools.	Total.	Total per head.	Mills on $	Municipalities.
$	$	$	$	$	$	$ c.		RUSSELL—*Con.*
129,585	.....	23,100	1,522	1,104	2,626	3 49	20.3	Casselman.
311,600	.....	93,500	3,174	7,950	11,124	3 67	35.7	Rockland.
441,185	.....	116,600	4,696	9,054	13,750	3 64	31.2	Totals.
435,360	.....	65,050	4,419	8,618	13,037	3 55	29.9	
								SIMCOE:
1,645,075	.....	42,720	10,084	6,107	16,191	7 50	9.8	Adjala.
1,934,612	.....	20,690	15,199	8,795	23,994	8 17	12.4	Essa.
2,015,519	.....	47,300	14,844	9,993	24,837	8 18	12.3	Flos.
1,952,360	.....	26,700	7,877	6,897	14,774	6 99	7.6	Gwillimbury, W.
2,440,208	.....	17,025	13,331	8,211	21,542	6 84	8.8	Innisfil.
115,491	.....	3,250	1,417	820	2,237	5 21	19.4	Matchedash.
1,196,980	.....	26,360	8,781	8,197	16,978	4 42	14.2	Medonte.
2,585,739	.....	62,500	15,813	13,763	29,576	6 65	11.4	Nottawasaga.
644,507	.....	25,650	9,936	8,515	18,451	5 73	28.6	Orillia.
1,581,828	.....	63,000	8,386	9,959	18,345	5 52	11.6	Oro.
963,966	.....	36,735	9,904	5,465	15,369	6 69	15.9	Sunnidale.
2,222,950	600,000	42,750	8,597	16,912	25,509	4 32	11.5	Tay.
3,396,350	.....	67,515	15,404	8,608	24,012	8 88	7.1	Tecumseth.
1,318,968	.....	25,530	11,619	7,953	19,572	5 58	14.8	Tiny.
752,083	.....	24,400	3,976	4,051	8,027	5 39	10.7	Tossorontio.
1,395,349	.....	30,000	7,264	7,191	14,455	6 29	10.4	Vespra.
26,161,985	600,000	562,125	162,432	131,437	293,869	6 27	11.2	Totals.
25,769,271	.....	513,355	155,352	123,187	278,539	5 90	10.8	
222,059	2,500	21,700	3,049	1,353	4,402	6 27	19.8	Beeton.
340,730	.....	28,200	4,239	3,341	7,580	7 81	22.2	Bradford.
243,662	.....	17,500	3,371	2,295	5,666	9 51	23.3	Coldwater.
207,019	.....	10,050	2,845	2,064	4,909	8 20	23.7	Creemore.
232,250	.....	25,950	2,615	1,570	4,185	8 47	18.0	Tottenham.
498,348	.....	48,200	9,088	4,689	13,777	11 59	27.6	Alliston.
3,245,618	52,000	318,000	41,167	27,539	68,706	10 45	21.2	Barrie.
2,893,616	52,000	348,850	56,777	24,687	81,464	11 17	28.2	Collingwood.
1,849,949	79,300	154,600	27,827	17,180	45,007	10 63	24.3	Midland.
2,119,624	.....	269,150	40,184	25,846	66,030	11 58	31.2	Orillia.
969,615	92,380	586,300	14,435	14,724	29,159	8 20	30.1	Penetanguishene.
326,312	.....	40,800	4,545	3,478	8,023	7 85	24.6	Stayner.
13,148,802	278,180	1,869,300	210,142	128,766	338,908	10 29	25.8	Totals.
12,771,400	255,955	2,007,915	202,844	122,622	325,466	9 57	25.5	
								STORMONT:
1,277,296	5,000	110,000	27,215	10,803	38,018	6 78	29.8	Cornwall.
1,137,211	.....	25,000	17,383	7,520	24,903	8 91	21.9	Finch.
2,029,350	.....	32,800	19,724	12,016	31,740	6 90	15.6	Osnabruck.
1,656,443	.....	45,120	27,424	10,576	38,000	10 46	22.9	Roxborough.
6,100,300	5,000	212,920	91,746	40,915	132,661	7 98	21.7	Totals.
6,216,148	5,000	219,975	82,870	38,591	121,461	7 11	19.5	
92,698	.....	7,300	1,369	722	2,091	5 06	22.6	Finch.
2,118,081	105,480	351,995	36,708	20,204	56,912	9 12	26.9	Cornwall.
2,210,779	105,480	359,295	38,077	20,926	59,003	8 87	26.7	Totals.
2,165,541	105,480	404,200	36,142	22,352	58,494	8 68	27.0	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
		Acres.	$	$	$	$	$
SUDBURY:							
Balfour ..... Tp.	479	20,933	92,820	27,115	112,235	.....	.....
Blezard ..... "	315	28,398	86,958	35,708	111,966	.....	.....
Casimir, etc..... "	597	38,118	112,700	16,600	122,500	300	.....
Chapleau ..... "	1,007	5,760	54,330	229,320	231,650	13,375	119,350
Drury, etc..... "	1,613	43,090	100,587	166,863	258,050	2,495	97,065
Hagar ..... "	236	12,928	28,732	26,747	52,679	2,696	.....
Hallam ..... "	265	17,569	43,875	10,425	52,700	.....	.....
Hanmer ..... "	429	16,710	44,540	11,534	54,444	3,500	.....
McKim ..... "	288	17,160	89,450	49,025	135,725	1,800	.....
Martland ..... "	353	18,095	41,307	12,053	52,265	600	.....
Nairn..... "	235	6,946	17,051	39,100	52,151	3,522	2,400
Neelon and Garson "	479	34,242	47,550	34,030	79,080	31,590	.....
Ratter and D..... "	1,027	36,580	118,785	78,401	189,086	8,658	.....
Rayside ..... "	770	19,564	87,044	31,121	116,240	.....	.....
Salter, etc. ..... "	794	38,788	119,910	48,815	166,330	580	.....
Waters ..... "	192	12,840	33,260	13,245	45,745	.....	.....
Totals.... 1910	9,079	367,721	1,118,899	830,102	1,832,846	69,116	218,815
Totals.... 1909	9,183	363,916	1,102,382	834,825	1,813,312	34,508	186,535
Chelmsford.....Tn.	534	452	26,632	59,012	74,644	.....	.....
Copper Cliff ..... "	2,417	1,489	5,575	498,845	439,420	111,430	37,325
Massey..... "	822	663	59,175	127,725	177,900	14,975	1,190
Sudbury..... "	4,093	2,560	1,041,513	966,510	1,621,223	222,022	.....
Webbwood..... "	569	743	39,525	124,545	146,820	14,997	3,150
Totals.... 1910	8,435	5,907	1,172,420	1,776,637	2,460,007	363,424	41,665
Totals.... 1909	7,163	5,513	1,127,640	1,365,731	2,193,006	314,017	35,017
THUNDER BAY:							
Neebing .....Tp.	127	96,863	523,854	9,800	524,484	1,200	.....
Nepigon ..... "	304	13,973	126,687	76,850	195,537	17,273	35,900
O'Connor ..... "	340	26,969	63,907	25,000	80,907	.....	.....
Oliver ..... "	527	37,963	199,442	109,253	295,106	112	.....
Paipoonge ..... "	617	44,860	369,817	42,452	405,839	5,000	.....
Schreiber..... "	1,031	420	18,515	136,155	139,070	8,940	76,962
Shuniah ..... "	251	103,375	327,388	11,330	332,018	.....	.....
Totals.... 1910	3,197	324,423	1,629,610	410,840	1,972,961	32,525	112,862
Totals.... 1909	2,909	332,372	1,474,763	339,501	1,748,295	25,103	89,612
Fort William City.. 1910	19,858	9,865	10,024,672	7,878,550	16,554,272	1,550,095	12,050
Fort William City.. 1909	18,003	9,865	7,299,207	6,184,405	12,338,812	1,029,210	1,455
Port Arthur City.. 1910	12,862	10,260	7,043,517	5,742,280	10,825,837	690,655	20,028
Port Arthur City.. 1909	11,646	10,260	6,437,430	4,661,760	7,634,260	402,585	15,845
VICTORIA:							
Bexley .....Tp.	660	28,432	129,979	106,995	226,674	11,190	.....
Carden ..... "	654	44,525	187,780	46,505	226,285	50	.....
Dalton ..... "	464	29,849	93,795	22,830	110,625	100	.....
Eldon ..... "	2,396	60,032	1,150,436	405,962	1,514,608	10,346	.....
Emily..... "	1,854	59,726	1,275,576	387,815	1,641,741	450	400
Fenelon ..... "	2,023	51,466	878,915	259,465	1,113,805	2,460	360
Laxton, Digby, etc. "	622	73,978	130,737	47,375	174,267	150	.....
Mariposa ..... "	3,321	75,064	2,663,012	796,985	3,419,597	13,471	4,900
Ops ..... "	1,971	56,503	1,745,190	429,270	2,124,460	3,000	500

Chelmsford organized Jan. 1910, out of Balfour Tp. Assessment and taxation estimated, as no return was received for 1910.

Assessed values and taxation for 1909 used for Schreiber, the return for 1910 not having been received

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for Schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed, Municipal.	School.	Total.	Total per head.	Mills on $.	Municipalities.
$	$	$	$	$	$	$ c.		SUDBURY:
112,235	.....	7,700	2,671	1,562	4,233	8 84	37.7	Balfour.
111,966	.....	10,700	1,492	965	2,457	7 80	21.9	Blezard.
122,800	2,762	6,800	1,652	2,050	3,702	6 21	30.1	Casimir, etc.
364,375	.....	52,000	3,461	5,325	8,786	8 72	24.1	Chapleau.
357,610	5,858	9,400	3,190	5,301	8,491	5 26	23.7	Drury, etc.
55,375	1,478	2,800	419	570	989	4 19	17.9	Hagar.
52,700	1,650	1,600	718	831	1,549	5 84	29.4	Hallam.
57,944	.....	1,630	2,575	723	3,298	7 69	56.9	Hanmer.
137,525	.....	2,750	1,925	825	2,750	9 55	20.0	McKim.
52,865	2,120	1,095	761	900	1,661	4 71	31.4	Martland.
58,073	.....	4,000	727	697	1,424	6 06	24.5	Nairn.
110,670	.....	2,500	2,164	1,209	3,373	7 04	30.5	Neelon and Garson.
197,744	2,150	8,100	1,179	2,400	3,579	3 48	18.1	Ratter and D.
116,240	.....	1,925	1,629	2,096	3,725	4 84	32.0	Rayside.
166,910	1,500	2,395	1,125	2,464	3,589	4 52	21.5	Salter, etc.
45,745	1,750	760	334	251	585	3 05	12.8	Waters.
2,120,777	19,268	116,155	26 022	28,169	54,191	5 97	25.6	Totals.
2,034,355	7,942	123,895	18,617	27,847	46,464	5 06	22.8	
74,644	.....	11,000	1,194	741	1,935	3 62	25.9	Chelmsford.
588,175	.....	65,000	8,991	7,293	16,284	6 74	27.7	Copper Cliff.
194,065	.....	9,000	2,601	3,155	5,756	7 00	29.7	Massey.
1,843,245	.....	386,800	19,324	21,150	40,474	9 89	22.0	Sudbury.
164,967	.....	17,250	2,997	2,310	5,307	9 33	32.2	Webbwood.
2,865,096	.....	489,050	35,107	34,649	69,756	8 27	24.3	Totals.
2,542,040	.....	300,365	38,077	28,804	66,881	9 34	26.3	
								THUNDER BAY:
525,684	.....	9,170	9,473	.....	9,473	7 46	18.0	Neebing.
248,710	.....	8,000	2,128	900	3,028	9 96	12.2	Nepigon.
80,907	.....	8,000	938	692	1,630	4 79	20.1	O'Connor.
295,218	.....	13,589	4,320	1,337	5,657	10 73	19.2	Oliver.
410,839	.....	6,430	7,407	2,871	10,278	16 66	25.0	Paipoonge.
224,972	.....	15,600	3,149	1,275	4,424	4 29	19.7	Schreiber.
332,018	.....	6,700	5,985	2,926	8,911	3 55	26.8	Shuniah.
2,118,348	.....	67,489	33,400	10,001	43,401	13 58	20.5	Totals.
1,863,010	76,024	65,969	27,781	10,766	38,547	13 25	20.7	
18,116,417	2,705,655	1,348,950	247,114	114,081	361,195	18 19	19.9	Fort William.
13,369,477	1,742,450	1,144,800	205,875	71,978	277,853	15 43	20.8	
11,536,520	2,425,085	1,959,960	210,944	71,526	282,470	21 96	24.5	Port Arthur.
8,052,688	510,000	3,464,930	146,404	67,558	213,962	18 37	26.6	
								VICTORIA:
237,864	.....	10,300	1,678	2,458	4,136	6 27	17.4	Bexley.
226,335	.....	8,000	1,220	2,575	3,795	5 80	16.8	Carden.
110,725	.....	6,000	700	1,541	2,241	4 83	20.2	Dalton.
1,524,954	.....	41,790	10,501	6,946	17,447	7 28	11.4	Eldon.
1,642,591	.....	21,650	7,317	6,405	13,722	7 40	8.4	Emily.
1,116,565	.....	24,575	6,087	6,968	13,055	6 45	11.7	Fenelon.
174,417	.....	3,845	1,712	2,083	3,795	6 10	21.8	Laxton, Digby, etc.
3,437,968	.....	40,400	18,942	11,407	30,349	9 14	8.8	Mariposa.
2,127,960	.....	50,000	13,861	6,685	20,546	10 42	9.7	Ops.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Exclusive buildings.	Buildings.	Real property.	Business assessment.	Income.
VICTORIA—*Con.*		Acres.	$	$	$	$	$
Somerville .....Tp.	1,636	64,262	171,070	81,935	247,455	6,375	250
Verulam ..... "	1,896	55,341	711,260	210,044	904,054	4,900	.....
Totals.... 1910	17,497	599,178	9,137,750	2,795,181	11,703,571	52,492	6,350
Totals.... 1909	17,534	599,926	9,080,280	2,820,321	11,670,989	45,394	6,225
Bobcaygeon ....Vill.	965	450	58,550	216,955	248,755	19,040	4,263
Fenelon Falls... "	1,085	549	181,440	364,175	475,515	51,408	5,525
Omemee..... "	549	411	41,670	157,215	172,645	11,449	1,600
Sturgeon Point.. "	430	222	26,550	39,040	64,690	562	132
Woodville ..... "	441	495	34,750	107,625	122,400	6,640	1,846
Lindsay .....Tn.	7,725	1,550	800,100	2,063,100	2,314,850	280,575	37,825
Totals.... 1910	11,195	3,677	1,143,060	2,948,110	3,398,855	369,674	51,191
Totals.... 1909	11,171	3,609	1,129,357	2,855,704	3,265,561	377,914	48,840
WATERLOO:							
Dumfries, N.....Tp.	1,909	44,445	1,257,847	833,370	2,063,517	24,650	1,400
Waterloo ..... "	6,715	81,820	2,710,830	1,387,815	3,998,995	34,900	11,950
Wellesley ..... "	4,330	65,809	2,305,225	1,473,930	3,717,955	46,645	4,500
Wilmot..... "	4,469	60,902	1,930,870	1,026,275	2,887,220	38,540	17,535
Woolwich..... "	3,894	53,567	1,916,910	900,980	2,775,615	29,735	10,255
Totals.... 1910	21,317	306,543	10,121,682	5,622,370	15,443,302	174,470	45,640
Totals.... 1909	21,620	306,779	10,122,195	5,620,310	15,397,785	176,383	50,745
Ayr .....Vill.	833	500	59,583	246,987	268,795	24,709	12,161
Elmira..... "	1,760	433	127,080	462,715	540,395	59,398	11,220
New Hamburg.. "	1,690	950	122,480	372,855	460,385	51,466	15,390
Berlin..... Tn.	14,600	3,095	2,607,799	4,208,160	5,668,459	624,811	148,261
Galt ..... "	9,718	1,477	1,473,641	3,673,650	4,056,744	532,412	99,020
Hespeler..... "	2,518	462	165,905	725,450	788,055	78,650	13,410
Preston..... "	3,504	1,300	306,899	959,769	1,190,668	116,070	30,800
Waterloo ..... "	4,620	2,350	446,625	1,483,225	1,718,950	373,480	33,685
Totals.... 1910	39,243	10,567	5,310,012	12,132,811	14,692,451	1,860.996	363,947
Totals.... 1909	37,513	10,671	4,918,523	12,998,542	15,248,663	1,867,440	362,977
WELLAND:							
Bertie .....Tp.	3,132	35,095	1,086,280	917,115	1,977,395	44,135	7,350
Crowland..... "	1,053	19,118	636,038	177,875	804,913	500	670
Humberstone ... "	2,960	30,836	704,605	428,765	1,108,945	53,225	23,600
Pelham ..... "	2,513	28,727	679,267	500,845	1,134,942	11,105	4,033
Stamford. ..... "	2,789	21,491	809,808	812,992	1,539,200	15,755	.....
Thorold..... "	1,703	22,650	502,494	314,580	773,794	5,570	2,070
Wainfleet ..... "	2,550	50,635	852,889	299,145	1,135,179	6,854	.....
Willoughby ..... "	846	18,779	371,560	188,980	554,645	2,725	.....
Totals ... 1910	17,546	227,331	5,642,941	3,640,297	9,029,013	139,869	37,723
Totals ... 1909	17,466	227,727	5,707,059	3,237,525	8,633,789	123,858	29,614
Bridgeburg.....Vill.	1,639	678	506,720	456,675	931,395	31,580	16,736
Chippawa ..... "	736	164	68,755	107,100	167,155	7,300	825
Fort Erie..... "	1,379	676	310,201	328,860	607,461	17,523	4,388
Port Colborne.. "	1,447	254	126,456	322,735	416,541	40,737	11,300

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed.					Municipalities.
			Municipal.	School.	Total.	Total per head.	Mills on $.	
$	$	$	$	$	$	$ c.		VICTORIA.—*Con.*
254,080	.....	5,550	3,480	4,110	7,590	4 64	29.9	Somerville.
908,954	.....	17,250	6,800	6,113	12,913	6 81	14.2	Verulam.
11,762,413	.....	229,360	72,298	57,291	129,589	7 41	11.0	Totals.
11,722,608	.....	229,612	68,671	54,647	123,318	7 03	10.5	
272,058	.....	26,750	4,883	2,520	7,403	7 67	27.2	Bobcaygeon.
532,448	.....	70,100	5,161	2,988	8,149	7 51	15.3	Fenelon Falls.
185,694	.....	26,240	1,477	1,579	3,056	5 57	16.5	Omemee.
65,384	.....	900	762	153	915	2 13	14.0	Sturgeon Point.
130,886	.....	19,975	1,415	715	2,130	4 83	16.3	Woodville.
2,633,250	30,000	548,350	59,302	26,372	85,674	11 09	32.5	Lindsay.
3,819,720	30,000	692,315	73,000	34,327	107,327	9 59	28.1	Totals.
3,692,315	54,000	719,500	72,356	30,953	103,309	9 25	28.0	
								WATERLOO:
2,089,567	.....	27,700	10,245	5,864	16,109	8 44	7.7	Dumfries, N
4,045,845	.....	99,650	21,000	18,803	39,803	5 93	9.8	Waterloo.
3,769,100	.....	61,200	14,455	14,559	29,014	6 71	7.7	Wellesley.
2,943,295	.....	69,925	13,961	14,683	28,644	6 41	9.7	Wilmot.
2,815,605	.....	42,275	13,751	12,549	26,300	6 75	9.3	Woolwich.
15,663,412	.....	300,750	73,412	66,458	139,870	6 56	8.9	Totals.
15,624,913	.....	344,720	77,639	64,356	141,995	6 57	9.1	
305,665	.....	37,775	2,662	2,294	4,956	5 95	16.2	Ayr.
611,013	32,820	49,400	7,300	2,487	9,787	5 56	16.0	Elmira.
527,241	.....	34,950	7,377	3,350	10,727	6 35	20.3	New Hamburg.
6,441,531	129,125	1,147,500	111,178	47,930	159,108	10 90	24.7	Berlin.
4,688,176	147,210	1,090,547	84,789	36,457	121,246	12 48	25.9	Galt.
880,115	.....	103,300	12,410	6,513	18,923	7 52	21.5	Hespeler.
1,337,538	56,700	76,000	20,418	10,232	30,650	8 75	22.9	Preston.
2,126,115	77,400	210,900	39,289	13,573	52,862	11 44	24.9	Waterloo.
16,917,394	443,255	2,750,372	285,423	122,836	408,259	10 40	24.1	Totals.
17,479,080	482,880	2,668,402	301,206	111,742	412,948	11 01	23.6	
								WELLAND:
2,028,880	70,000	26,000	18,029	10,103	28,132	8 98	13.9	Bertie.
806,083	172,500	9,000	6,547	1,324	7,871	7 47	9.8	Crowland.
1,185,770	36,100	24,425	6,830	7,596	14,426	4 87	12.2	Humberstone.
1,150,080	.....	45,170	9,606	6,278	15,884	6 32	13.8	Pelham.
1,554,955	.....	83,600	12,054	10,314	22,368	8 02	14.4	Stamford.
781,434	20,000	43,280	8,629	6,010	14,639	8 60	18.7	Thorold.
1,142,033	6,000	16,855	9,543	6,508	16,051	6 29	14.1	Wainfleet.
557,370	.....	5,895	3,047	2,353	5,400	6 38	9.7	Willoughby.
9,206,605	304,600	254,225	74,285	50,486	124,771	7 11	13.6	Totals.
8,787,261	181,200	310,795	68,941	48,117	117,058	6 70	13.3	
979,711	.....	32,000	9,116	6,662	15,778	9 63	16.1	Bridgeburg.
175,280	10,725	8,700	1,816	1,103	2,919	3 97	16.7	Chippawa.
629,372	.....	31,600	9,987	2,832	12,819	9 30	20.4	Fort Erie.
468,578	2,850	32,650	6,714	4,443	11,157	7 71	23.8	Port Colborne.

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
		Acres.	$	$	$	$	$
WELLAND.—*Con.*							
Thorold.....Tn.	2,119	814	187,950	587,607	661,777	74,498	5,250
Welland ..... "	4,681	1,200	736,700	1,990,850	2,368,250	340,530	37,365
Totals.... 1910	12,001	3,786	1,936,782	3,793,827	5,152,579	512,168	75,864
Totals.... 1909	11,348	3,795	1,400,293	3,601,295	4,670,438	475,205	105,549
*Niagara Falls City.... 1910	8,843	1,414	1,387,734	3,281,531	4,225,665	293,426	8,900
*Niagara Falls City.... 1909	8,200	1,655	1,222,666	3,237,914	4,032,980	305,697	9,600
WELLINGTON:							
Arthur..... Tp.	2,425	64,466	1,828,562	658,905	2,439,092	3,725	300
Eramosa..... "	2,358	44,461	1,313,130	774,830	2,059,060	21,870	6,625
Erin..... "	3,011	70,592	1,483,350	656,925	2,110,675	7,380	.....
Garafraxa, W.... "	1,815	47,084	1,387,285	328,840	1,703,025	3,242	2,500
Guelph .... "	2,225	37,335	1,380,450	1,148,805	1,914,755	40,650	36,650
Luther, W..... "	1,849	49,783	1,153,357	379,775	1,505,232	4,350	.....
Maryborough.... "	2,637	56,470	1,738,780	700,115	2,393,895	10,820	.....
Minto ..... "	2,574	69,272	1,741,206	709,500	2,432,131	8,715	100
Nichol ..... "	1,528	27,167	847,745	484,955	1,297,480	8,085	3,315
Peel ..... "	3,327	74,566	2,068,330	822,245	2,864,325	7,575	3,500
Pilkington ..... "	1,149	29,143	969,971	364,720	1,321,091	400	1,000
Puslinch..... "	2,609	58,339	916,447	618,100	1,463,337	10,085	1,700
Totals.... 1910	27,507	628,678	16,828,613	7,647,715	23,504,098	126,897	55,690
Totals.... 1909	28,087	628,508	16,826,609	7,563,875	23,467,474	133,970	53,430
Arthur.....Vill.	1,110	994	112,020	349,620	380,040	36,750	8,870
Clifford..... "	600	440	32,170	161,385	173,455	13,409	1,750
Drayton..... "	784	437	53,925	242,930	258,455	26,430	950
Elora..... "	1,205	600	73,710	346,380	346,740	31,507	13,100
Erin..... "	526	458	35,550	110,600	132,650	12,470	400
Fergus..... "	1,465	850	125,195	418,030	467,425	43,650	13,930
Harriston ..... Tn.	1,630	862	99,231	468,725	475,606	56,620	2,900
Mount Forest.. "	2,221	1,414	178,165	652,635	687,000	69,485	8,625
Palmerston..... "	1,850	960	144,908	470,950	544,308	44,480	4,101
Totals.... 1910	11,391	7,015	854,874	3,221,255	3,465,679	334,801	54,626
Totals.... 1909	11,353	6,989	891,533	3,117,915	3,430,998	339,555	64,401
*Guelph City..... 1910	14,867	3,200	2,524,670	4,964,170	5,839,840	677,725	55,974
*Guelph City..... 1909	14,789	3,200	2,374,490	4,793,640	5,575,630	655,900	76,150
WENTWORTH:							
Ancaster.....Tp.	3,830	48,105	1,807,210	637,500	2,389,910	12,715	6,500
Barton..... "	3,644	10,799	648,542	762,524	933,866	7,420	12,550
Beverly..... "	3,260	69,738	1,886,726	945,750	2,772,326	11,450	1,400
Binbrook..... "	1,126	26,444	838,038	194,625	1,012,663	3,485	.....
Flamborough, E.. "	2,335	33,762	1,370,628	528,100	1,858,228	4,250	.....
Flamborough, W. "	2,566	31,107	1,060,355	670,085	1,662,240	16,625	3,075
Glanford ..... "	1,408	23,539	831,421	272,800	1,076,621	6,875	2,600
Saltfleet ..... "	3,176	28,304	1,263,146	820,340	2,013,786	16,050	3,750
Totals.... 1910	21,285	271,798	9,706,066	4,831,724	13,719,640	78,870	29,875
Totals.... 1909	24,472	271,596	9,844,985	4,874,418	14,149,653	80,079	34,825

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed.					Municipalities.
			Municipal.	School.	Total.	Total per head.	Mills on $.	
$	$	$	$	$	$	$ c.		
								WELLAND—*Con.*
741,525	7,500	113,780	17,892	5,295	23,187	10 94	31.3	Thorold.
2,746,145	493,880	359,300	50,751	14,669	65,420	13 98	23.8	Welland.
5,740,611	514,955	578,030	96,276	35,004	131,280	10 94	22.9	Totals.
5,251,192	564,580	331,150	80,004	30,671	110,675	9 75	21.1	
4,527,991	448,705	443,600	88,099	36,224	124,323	14 06	27.5	*Niagara Falls.
4,348,277	426,665	427,600	84,681	34,873	119,554	14 58	27.5	
								WELLINGTON:
2,443,117	.....	48,375	12,722	8,728	21,450	8 85	8.8	Arthur.
2,087,555	.....	28,900	10,692	5,687	16,379	6 95	7.8	Eramosa.
2,118,055	.....	29,600	10,271	8,914	19,185	6 37	9.1	Erin.
1,708,767	.....	13,100	10,434	6,288	16,722	9 21	9.8	Garafraxa, W.
1,992,055	.....	614,500	11,794	5,938	17,732	7 97	8.9	Guelph.
1,509,582	.....	27,900	8,377	6,745	15,122	8 18	10.0	Luther, W.
2,404,715	.....	45,000	12,659	10,020	22,679	8 60	9.4	Maryborough.
2,440,946	.....	18,575	17,360	3,894	21,254	8 26	8.7	Minto.
1,308,880	.....	35,220	6,325	3,776	10,101	6 61	7.7	Nichol.
2,875,400	.....	26,250	13,899	12,380	26,279	7 90	9.1	Peel.
1,322,491	.....	13,600	6,640	4,075	10,715	9 33	8.1	Pilkington.
1,475,122	.....	71,210	12,946	3,734	16,680	6 39	11.3	Puslinch.
23,686,685	.....	972,230	134,119	80,179	214,298	7 79	9.0	Totals.
23,654,874	.....	923,010	120,582	85,218	205,800	7 33	8.7	
425,660	.....	81,600	5,246	3,960	9,206	8 29	21.6	Arthur.
188,614	.....	20,100	1,999	1,320	3,319	5 53	17.6	Clifford.
285,835	.....	38,400	3,048	2,720	5,768	7 36	20.2	Drayton.
391,347	21,220	73,350	5,045	4,199	9,244	7 67	23.6	Elora.
145,520	.....	13,500	1,624	728	2,352	4 47	16.2	Erin.
525,005	.....	75,800	5,776	5,821	11,597	7 91	22.1	Fergus.
535,126	38,400	92,350	9,586	4,802	14,388	8 83	26.9	Harriston.
765,110	20,000	143,800	15,058	5,804	20,862	9 39	27.3	Mount Forest.
592,889	8,000	71,550	14,962	5,936	20,898	11 30	35 2	Palmerston.
3,855,106	87,620	610,450	62,344	35,290	97,634	8 57	25.3	*Totals.
3,834,954	107,876	578,450	58,985	33,157	92,142	8 12	24.0	
6,573,539	193,100	1,649,000	58,060	62,620	120,680	8 12	18.4	*Guelph.
6,307,680	186,100	1,592,500	40,156	51,402	91,558	6 19	14.5	
								WENTWORTH:
2,409,125	.....	54,800	16,300	8,306	24,606	6 42	10.2	Ancaster.
953,836	.....	477,200	12,763	5,162	17,925	4 92	18.8	Barton.
2,785,176	.....	60,150	16,658	8,415	25,073	7 84	9.0	Beverly.
1,016,148	.....	20,000	7,562	3,233	10,795	9 59	10.6	Binbrook.
1,862,478	.....	40,500	12,734	5,891	18,625	7 98	10.0	Flamborough, E.
1,681,940	.....	68,200	10,339	5,924	16,263	6 34	9.7	Flamborough, W.
1,086,096	.....	27,600	6,407	3,287	9,694	6 88	8.9	Glanford.
2,033,586	.....	69,700	18,828	10,439	29,267	9 22	14.4	Saltfleet.
13,828,385	.....	818,150	101,591	50,657	152,248	7 15	11.0	Totals.
14,264,557	3,900	569,750	99,140	54,242	153,382	6 27	10.8	

POPULATION, AREA, ASSESSMENT,

Municipalities.	Assessed population, 1910.	Area assessed.	Real property.		Assessed values.		
			Excluding buildings.	Buildings.	Real property.	Business assessment.	Income.
WENTWORTH—*Con.*		Acres.	$	$	$	$	$
Waterdown....Vill.	730	349	14,300	175,975	175,775	10,605	1,200
Dundas ..... "	3,953	550	416,045	1,210,625	1,170,670	101,600	62,525
Totals ... 1910	4,683	899	430,345	1,386,600	1,346,445	112,205	63,725
1909	4,647	877	341,695	1,363,850	1,326,545	115,963	60,125
*Hamilton.... 1910	73,542	6,090	16,120,012	26,916,910	36,259,822	4,427,315	1,401,300
City.... 1909	70,221	6,090	15,262,415	24,001,315	34,321,185	4,307,180	1,354,620
YORK:							
Etobicoke.....Tp.	5,466	28,789	1,782,220	1,058,802	2,463,402	45,740	39,800
Georgina..... "	1,491	35,105	618,156	315,725	904,891	9,431	1,600
Gwillimbury, E.. "	3,251	57,942	1,250,990	428,371	1,653,850	11,250	2,200
Gwillimbury, N.. "	1,499	31,476	691,270	334,100	1,004,770	8,230	.....
King ..... "	4,636	88,787	2,554,095	1,065,615	3,549,910	20,005	.....
Markham ..... "	5,054	67,219	3,082,360	1,173,925	4,127,935	16,864	1,600
Scarborough .... "	3,426	42,547	2,197,133	445,730	2,586,013	6,150	7,988
Vaughan..... "	3,957	67,037	2,839,585	798,010	3,586,995	17,475	3,600
Whitchurch..... "	2,060	60,518	1,296,527	566,270	1,820,297	2,000	.....
York ..... "	11,561	54,725	5,029,008	2,138,520	6,679,753	83,275	18,000
Totals ... 1910	43,401	534,145	21,341,344	8,325,068	28,377,816	220,420	74,788
1909	50,789	536,622	22,130,101	9,423,507	30,233,607	236,767	74,820
Holland Landing, Vill.	370	1,834	45,705	43,063	81,268	1,600	600
Markham..... "	981	464	67,420	234,800	254,820	26,740	11,825
Richmond Hill.. "	692	464	75,500	184,750	203,750	9,325	3,940
Stouffville ..... "	998	385	79,350	280,200	341,250	27,100	2,800
Sutton..... "	626	487	71,745	197,925	253,670	13,747	2,684
Weston..... "	1,627	243	321,415	343,385	626,600	19,340	13,650
Woodbridge.... "	564	492	42,275	148,740	172,365	9,420	636
Aurora.....Tn.	1,683	1,100	140,823	467,195	499,218	35,515	1,100
Newmarket.... "	3,200	743	285,807	857,000	971,957	79,745	24,815
Totals... ... 1910	10,741	6,212	1,130,040	2,757,058	3,404,898	222,532	62,050
1909	10,752	6,120	1,001,129	2,557,789	3,145,143	242,858	64,194
*North Toronto 1910	4,471	2,500	2,236,129	1,074,152	3,182,221	27,600	19,346
Town 1909	4,193	2,500	1,137,417	861,901	1,903,008	19,525	25,915
*Toronto..... 1910	341,991	17,920	123,915,888	141,221,638	229,072,993	29,809,352	11,749,286
City..... 1909	325,302	17,920	103,676,180	126,181,481	197,792,635	25,591,074	10,924,837

EXEMPTIONS AND TAXATION.—*Continued.*

Total.	Assessed for schools only.	Exempt from taxes or liable for local improvements only.	Taxes imposed. Municipal.	School.	Total.	Total per head.	Mills on $	Municipalities.
$	$	$	$	$	$	$ c.		WENTWORTH-*Con.*
187,580	.....	14,500	2,603	1,160	3,763	5 15	20.1	Waterdown,
1,334,795	56,650	456,000	27,331	12,028	39,359	9 96	29.5	Dundas.
1,522,375	56,650	470,500	29,934	13,188	43,122	9 21	28.3	Totals.
1,502,633	59,695	379,000	33,949	12,602	46,551	10 01	31.0	
42,088,437	500,000	6,777,100	653,548	263,784	917,332	12 47	21.8	*Hamilton.
39,982,985	705,360	4,942,545	622,036	238,985	861,021	12 26	21.5	
								YORK:
2,548,942	.....	377,620	26,496	18,620	45,116	8 25	17.7	Etobicoke.
915,922	.....	28,990	4,276	3,837	8,113	5 44	8.9	Georgina.
1,667,300	.....	25,511	9,556	12,309	21,865	6 73	13.1	Gwillimbury, E.
1,013,000	.....	20,600	4,188	4,082	8,270	5 52	8.2	Gwillimbury, N
3,569,915	.....	69,800	19,236	11,878	31,114	6 71	8.7	King.
4,146,399	.....	128,350	25,342	14,686	40,028	7 92	9.7	Markham.
2,600,151	.....	56,850	19,371	10,758	31,129	9 09	12.0	Scarborough.
3,608,070	.....	50,600	22,568	10,963	33,531	8 47	9.3	Vaughan.
1,822,297	.....	42,500	10,044	7,789	17,833	5 83	9.8	Whitchurch.
6,781,028	8,400	487,775	64,223	38,859	102,082	8 83	15.1	York.
28,673,024	8,400	1,288,596	205,300	133,781	339,081	7 81	11.8	Totals.
30,545,194	11,900	1,320,001	207,926	150,429	358,355	7 06	11.7	
83,468	.....	7,500	643	583	1,226	3 31	14.7	Holland Landing.
293,385	3,300	47,400	5,587	3,370	8,957	9 13	30.5	Markham.
217,015	.....	56,500	2,536	2,108	4,644	6 71	21.4	Richmond Hill.
371,150	.....	18,300	4,594	2,005	6,599	6 61	17.8	Stouffville.
270,101	.....	16,000	2,122	1,224	3,346	5 35	12.4	Sutton.
659,590	.....	38,200	10,147	7,237	17,384	10 68	26.4	Weston.
182,421	.....	18,650	2,127	1,386	3,513	6 23	19.3	Woodbridge.
535,833	7,800	108,800	7,424	6,020	13,444	7 99	25.1	Aurora.
1,076,517	61,250	170,850	13,546	10,582	24,128	7 54	22.4	Newmarket.
3,689,480	72,350	482,200	48,726	34,515	83,241	7 75	22.6	Totals.
3,452,195	51,650	413,775	47,265	29,691	76,956	7 16	22.3	
3,229,167	.....	128,060	51,841	16,950	68,791	15 39	21.3	*North Toronto.
1,948,448	.....	96,310	33,733	14,820	48,553	11 58	24.9	
270,631,631	477,832	36,064,533	4,027,158	1,569,663	5,596,821	16 37	20.7	*Toronto.
234,308,546	356,424	32,065,026	3,835,187	1,335,559	5,170,746	15 90	22.1	

INDEX

MUNICIPAL STATISTICS: PAGE.

Comparative table as to *population, assessed values, taxation* and *debts* of Ontario municipalities for the years 1886-1910 ..... iii.

RECEIPTS, DISBURSEMENTS, ASSETS AND LIABILITIES FOR 1909:

Showing an abstract statement for municipalities arranged in alphabetical order:
Townships 2
Villages and towns 68
Cities 104
Counties 112

Comparative aggregate for ten years:

Townships . . . . iv.
Villages and towns ..... vi.
Cities 104
Counties 112
All municipalities ..... viii.

POPULATION, AREA, ASSESSED VALUES, EXEMPTIONS, AND TAXATION IN 1910:

Showing details for municipalities arranged by counties and districts, together with the average rate of taxes per head of population, and the average rate on the dollar 118

Comparative totals for township, village and town, and city municipalities, showing the assessment and taxation of the Province for the ten years 1901-1910; also the average rate of taxation per head of population, and the average rate on the dollar for all purposes, including schools, dog tax, commuted statute labor and local improvements ..... xiii.

Summary statement for the Province for 1910, showing the population, area, assessment and taxation for schools and municipal purposes, together with the assessed value of exempted real property ..... xvi.

POPULATION:

Totals by county and district boundaries at five year intervals ..... xiv.
Totals for the Province, showing townships, towns and villages, and cities.... xv.

LIST OF MUNICIPALITIES OWNING AND OPERATING ELECTRIC OR GAS STREET LIGHTING PLANTS . . . . xii.

TWENTY-THIRD ANNUAL REPORTS

OF THE

Inspectors of Factories

FOR THE

PROVINCE OF ONTARIO

1910

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

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TORONTO.

To the Honourable JOHN MORISON GIBSON, K.C., LL.D., etc., etc., etc.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the pleasure to present herewith for the consideration of Your Honour the Reports of the Inspectors of Factories for 1910.

Respectfully submitted,

JAMES S. DUFF,
Minister of Agriculture.

TORONTO, 1911.

OFFICIAL LIST, 1911.

CHIEF INSPECTOR: JAMES T. BURKE, Parliament Buildings.

INSPECTORS.

H. A. CLARK (821 King Street E., London, Ont.): Mr. Clark's territory is within the following railway lines: London, Lucan Crossing, Sarnia, Point Edward, Windsor, Port Stanley and St. Thomas.

A. W. HOLMES (Parliament Buildings, Toronto): Mr. Holmes' district is Toronto, west of Parliament Street, Howard and Glen Road to city limits, north to city limits, south to King Street, Strachan Avenue, Wellington and Church Streets.

R. HUNGERFORD (Parliament Buildings, Toronto): North, including terminal of the T. N. O. Railway, Copper Cliff, Owen Sound, south of Canada Atlantic Railway. East C. P. R. main line to Kingston and Pembroke Railway, excluding Harrowsmith, Renfrew, Smith's Falls and Arnprior. South, excluding Marlbank, Belleville, Port Hope, Port Perry and Scarboro' Junction, but includes both sides of King Street, west of Parliament to Church, Wellington, Strachan Avenue, King Street West, both sides and south, Swansea, New, West, and North Toronto from city limits to Waterdown, St. Ann, Georgetown, Cataract Junction and Kenilworth.

THOMAS KEILTY (25 Russell Avenue, Ottawa): Ottawa, C. P. R. main line north to North Bay (exclusive). Canada Atlantic Railway west to Scotia Junction (exclusive). West, to Renfrew, Eganville, Arnprior, Carleton Junction, Westport and Brockville; south to River St. Lawrence; east to Quebec boundary.

FRED. KELLOND (157 Wellington Street S., Hamilton): G. T. R., Hamilton, main lines west to London (exclusive). East to Niagara Falls (inclusive). All south and east of London to Port Stanley line.

S. J. MALLION (214 Wellington Street, Stratford): West to Pottersburg (exclusive), to Lucan Crossing; L. H. B. Railway and B. & G. Railway to Goderich and Kincardine. North, including Southampton and Bruce Peninsula. East, not including stations on C. P. R. and G. T. R. between Owen Sound, Georgetown and Hamilton, but excludes Shallow Lake. Southern Boundary shall not include stations of G. T. R. southern division main line between Hamilton, Harrisburg, St. George, Paris, Woodstock, London, *e.g.*, but includes Manitoulin Island.

H. J. TUTT, (Parliament Buildings): Toronto, east of, and including both sides of Parliament Street. Howard Street, Glen Road and Waterfront. East, G. T. R. main line to Brockville (not inclusive). North, from Whitby to Port Perry (inclusive). North from Cobourg to Harwood (inclusive). Trenton north to Frankfort, Napanee, Kingston and north to Marlbank and Harrowsmith. South, including Lake Ontario and Prince Edward County.

MISS M. CARLYLE (Parliament Buildings, Toronto): City of Toronto, including west side of Yonge Street, north to city limits. West to Goderich and Windsor and all places south of Goderich, Stratford, Berlin, Mosborough and G. T. R. main line east, exclusive of Guelph, and stations between there and West Toronto, including Niagara Peninsula and all places south of Lake Erie.

MRS. A. BROWN (Parliament Buildings, Toronto): City of Toronto, east side of Yonge Street to Province of Quebec boundary line. North, including Ottawa, Mattawa, North Bay, Sudbury, Owen Sound, Wiarton, Southampton, Teeswater and Kincardine. South, exclusive of Clinton, Seaforth, Stratford, Berlin, and includes stations between Guelph and West Toronto.

INSPECTORS OF FACTORIES

OF THE

PROVINCE OF ONTARIO

1910.

REPORT OF CHIEF INSPECTOR JAMES T. BURKE.

To the Honorable the Minister of Agriculture:

SIR,—I have the honor to submit to you the twenty-third Annual Report of the Factories Inspectors for the Province of Ontario for the year ending December 31st, 1910.

This year will compare favorably with preceding years, in regard to industrial conditions. Perhaps in no time has general prosperity been so great. Statistics are hardly necessary to show the increased activity, as the prosperity in the Province is apparent to every one. No manufacturing establishment is idle through lack of a demand for its products, and the constantly increasing business has resulted in an immense use of steam, gas, gasoline, and electrical power.

In keeping with the development of trade, a marked advance has been made in providing for, and maintaining the conditions set forth in the Factories Act. Many noticeable changes have been made during the year in regard to needed improvements in factory buildings, and, thanks to the good judgment, tact and general efficiency of our Inspectors, we seldom have had to resort to extreme measures to have the law complied with.

INSPECTIONS.

Four hundred and fifty-two Cities, Towns, Villages, etc., were visited during the year and the following factories, mercantile establishments and workshops inspected:

Agricultural Implements	52	Packing Houses	28
Brick and Tile Works	137	Rubber and Gutta Percha	15
Cotton	36	Flax, Twine and Cordage	44
Clothing	1,622	Tobacco, Drugs, etc.	184
Chemicals	109	Wood	474
Conveyances and accessories	83	Woollens	224
Food	610	Bakeshops	492
Glass	37	Confectionery	243
House Furnishings	66	Dry Goods Stores	369
Metals (Iron Founding, etc.)	243	Fancy Goods	91
Metals (Manufacture of)	317	Furniture Stores	7
Jewellery	20	General and Grocery Stores	216
Laundries	177	Hardware	39
Leather and Leather Goods	255	Harness	13
Locomotive and Car Shops	20	Jewellery Stores	25
Lumber	652	Music, Books and Stationery	75
Machinery	276	Millinery	188
Miscellaneous	748	Tailor Shops	381
Paper and Paper Trades	386		

Employees.

Employees in these places number (approximately) 233,682.

Stationary Engineers Inspection.

Fifteen hundred and forty-nine inspections were reported in connection with the enforcing of the Act respecting Stationary Engineers.

Recommendations.

Four thousand two hundred and thirty-three recommendations were made in connection with the following:—

Steam boilers.
Child Labor.
Elevators.
Fire-escapes.
Guards for machinery.
Hours of Labor.
Ventilation.
Sanitation.
Seats for females.
Mode of wearing the hair.
Cleanliness.
Miscellaneous.

Accidents.

There were seven hundred and sixty-four accidents reported during the year just closed, which is an increase over last year. This may be attributed to a better observance of the law regarding the reporting of accidents, rather than to an actual increase of accidents. Some of these were serious and in a measure due to neglect on the part of the victims themselves, but quite a number were trivial. Fatal accidents reported totalled thirty-six, a decrease from the number reported during the year 1909, and are as follows:

James Pearce, employed in the Paris Wincey Mills, Paris, Ont., was killed while putting a belt on pulley.

Archibald Fraser, employed by the Office Specialty Company, Newmarket, was fatally injured while sliding off a belt connecting drop hammer with line shaft. He was drawn up and thrown to floor.

Frank Smith, employed by Beardmore & Company, Acton, while working around some leaches stepped into one accidentally and was badly scalded. Died subsequently.

John McIllmurray, employed by the McLaughlin Carriage Company, Oshawa, while sweeping shavings off roof of boiler house, fell through elevated sky-light, dying in a few moments.

H. Bawden, employed by the Gurney-Tilden Company, Hamilton, was suffocated by fire, which occurred.

A. McCullen, also an employee of the Gurney-Tilden Company, Hamilton, was suffocated in fire.

William Barnes, employed by the Ontario Iron and Steel Company, Welland, fell from cage over crane, while fixing a wire.

Fred Pembleton, employed by the Guelph Worsted Spinning Company, died from injuries received on elevator. Elevator cable broke.

Jonathan Rawn, employed by the Knechtel Woodturning Company, Southampton, while operating rip saw, was struck in the abdomen by a piece of wood thrown back from saw.

Joseph Parker, an employee of the McClary Manufacturing Company, London, Ont., killed on elevator. Head was crushed.

W. Wilson, employed by the Peerless Brick & Tile Company, Ottawa, while putting a water pipe over mixing machine was drawn into machine and met instantaneous death.

Lewis Hunter, employed by the Hamilton Bridge Works Company, while making repairs on building was struck by a travelling crane and his head was crushed.

Andrew Dennett, an employee of the Crown Gypsum Company, Lythmore, while crossing from bin to beam was caught in a shaft.

Giovanatto Ugo, employed by the Algoma Steel Company, Sault Ste. Marie, was killed instantly while making a coupling.

Frank Clark, employed by the Canada Cement Company, Humberstone, jumped from moving car and fell under the wheels. Both legs were cut off.

Fred Miller, employed by Jacob Kaufman, Berlin, was struck in abdomen by board, which was thrown back from rip saw.

Lewis McNaught, employed by the Standard Chemical Company, Longford Mills, was fatally burned by explosion.

John McCauley, also employed by the Standard Chemical Company, Longford Mills, was fatally burned.

John Lable, employed by the Macdonald Manufacturing Company, Toronto. Head crushed in elevator. No one witnessed accident.

William Smith, employed by Messrs. Lawrence Bros., Folger, while operating lath bolting machine was struck in abdomen by a slat, which was thrown back.

William Smith, employed by Messrs. Joseph King & Company, Port Arthur, found jammed in tripper which discharges grain into bin. Clothing apparently caught on friction shaft.

Daniel Gillam, employed by Messrs. M. Beatty & Sons, Welland, was killed by boiler plate falling on him.

Alexander Kupiniski, employed by Messrs. John B. Smith & Sons, Toronto, found dead in shaving chute. Accident not witnessed.

Richard Thompson, employed by the Alpha Chemical Company, Berlin, died from pneumonia, caused by cold caught during fire.

Nellie Jordan, employed by William Neilson, Limited, Toronto, was caught by elevator door and crushed against beam post, so severely that death resulted.

Earl Barrett, employed by Messrs. D. S. Perrin & Company, London, was killed by elevator dropping to basement.

Nicolo Bartomell, employed by the Ontario Steel & Iron Company, Welland, had the bones of neck broken. Every wheel on grinder broke, the pieces striking him and he was knocked between two draft bars.

Milton Sansom, employed by the Superior Portland Cement Company, Orangeville, was killed while installing a new rotary kiln. He was wound around a shaft and his arm severed from his body.

Frank Kyle, employed by the Canada Cement Company, Belleville, was killed while attempting to oil a bearing near gears, without shutting down engine. He was caught between two spur gears.

Francis Garvin, employed by J. R. Booth, Ottawa, was jammed between end of a log and side of mill. His knee was cut and death resulted from loss of blood and shock.

John Herron, employed by the Canadian Westinghouse Company, Hamilton, was struck in abdomen by a piece of wood thrown back from rip saw. Died shortly after.

Douglas Lucas, employed by Messrs. P. C. Larkin & Co., Toronto, was killed by head being caught between elevator car and shaft.

Greviu Charichi, employed by the Canada Cement Company, Belleville, killed by becoming tangled up in shaft.

John Clark, employed by the Goldie & McCulloch Company, Galt, while reaching for lever to stop drill, revolving cutter caught his jacket, twisting arm around stem of drill pin, dislocating shoulder and breaking his arm, causing death.

James Hampton, an employee of the Canada Foundry Company, Davenport, died suddenly in factory from heart failure.

Hiron Gideon Potruff, employed by the Paris Wincey Mills Co., Paris, slipped into boiling vat and died in a few hours.

Explosions.

Two steam boiler explosions were reported this year, as follows:—

At Cochrane, in the lumber mill, owned by William Breeze & Sons, boiler exploded killing one man and injuring another. Cause unknown.

At Kenilworth, in the lumber mill, owned by J. O'Neil, boiler exploded, but no one was injured. Cause unknown.

Boiler Inspection.

A careful inspection of steam boilers is a matter of very great importance in safeguarding life, limb and property. I desire here to refer to the fact that we have considerable trouble in obtaining satisfactory annual reports of inspection of steam boilers, as the law provides that, outside of the inspectors employed by the authorized boiler insurance companies, that steam boilers are to be inspected by either a certificated engineer or an engineer having had at least five years' experience in charge of a steam boiler and engine. Now, in many cases we find that, notwithstanding the fact that we furnish guide forms, engineers' reports are inaccurate; again, employers, foremen, machinists, boiler makers, and others undertake to make and record inspection reports, which entails a large amount of work and correspondence to straighten out the many irregularities contained in the report, but we find that continued missionary work is improving the form and quality of boiler inspection work.

Flax and Scutch Mills.

On account of the great amount of dust generated, in flax mills during the process work, it should be the aim of employers to introduce mechanical fans for the better ventilation of their mills, which is the only known method to ameliorate the conditions under which the scutchers, etc., work, and I have noticed in one of the English annual factory inspection reports, where the Blackman Ventilation Company, Limited, 31 Bridge Street, Belfast, Ireland, undertook to effectually remove the dust, and one of the contract conditions were that if it was not a perfect success the firm would make no charge.

I understand the contractor made a perfect success in removing dust in one mill operated by a Mr. Stewart, who offers to allow anyone interested in the trade to see what has been done in his mill, and several flax mill owners in that district are having the same principle applied in their mills, and when this system is generally adopted in this Province the flax operator will be able to say that his occupation is a perfectly healthy one.

Heating.

Many authorities have undertaken the task of writing articles on how to heat miscellaneous buildings during zero weather, and it has been our experience that such articles, although well written by heating experts, seem to lose sight of the fact that you cannot have a successful heating system unless you have also a good ventilation system. Another point which is often lost sight of is that the cost of fuel makes it imperative that the heating system should be one that will give the best results, and also be the cheapest on fuel, but the whole object to be obtained is that the building shall be easily heated to 70 or 75 degrees on any cold morning, and the heat maintained throughout a zero day, and we find this question is more easily worked out on paper by experts than in practice. This is borne out by the fact that we receive so many calls about defective heating in factory and shop workrooms, and members of our staff who investigate those complaints are met by the executive, who says: "This system was put in by an expert, but it does not work," and in consequence this department begins investigating, and finds, usually a good fire in heating plant, but workrooms are cold, or it may be that we find that all flats are warm except the one where the most of the help are employed, and it follows that the defect is usually found in lack of heating surface, or a defective installation.

Ventilation.

The many complaints that have been received from all parts of the Province in connection with improper ventilation and heating occupies a great deal of our time in having the same remedied to partly conform with the law, but all agree that it is essential that all factory workrooms should be properly ventilated; more so when we consider that millions of people are poisoned by impure air, and agitation to secure reform cannot be overdone.

It will do no harm to quote here some of the first evidences and consequences of lack of ventilation: headache, dull pressure on the lungs; lungs become parched, producing irritation; dryness of the throat, producing sore throat; a feverish condition of the whole system.

The expedients for obtaining a supply of fresh air to the room, so that there is a constant dilution and consequent bettering of the atmosphere are comparatively simple. They merely imply that the air warmed by the hot-air furnace or the steam coils in the cellar be taken from a place where it is pure (not, for instance, above a cess-pool), and the ducts in the cellar through which the air travels be air-tight (perfectly so constructed of No. 22 or 24 galvanized iron, rather than wood), and that some automatic means be adopted to so regulate the temperature of the air supplied to the rooms without shutting off such air supply. Or, when steam radiators are in rooms, that they be placed below windows and air pass by proper orifices from the outside, through the radiators.

Furthermore, in large structures, a fan driven by electricity or steam power is often instituted for forcing in a larger amount of fresh air than could be secured by the natural suction of the warmed air.

But the mere supply of the warmed air in the rooms is not enough. For note, if the air in the room has no escape it does not take long, whatever the hot air supply, before the vitiated air contaminates and makes foul the air as it enters the apartment. To open the windows is the remedy which the uninitiated at once suggest, and in fact, in most places this is the only palliative at hand.

It is, however, one of the first principles of ventilation that the windows may not enter as an expedient. In a properly ventilated building the windows should never be opened, at least in the winter months. For opening the windows secures the admission of cold air in bulk, but does not remove the foul air, and more especially causes pneumonia—giving draughts and chills in the room, and in this way more damage is done than by even the presence of vitiated air itself in the rooms.

A warm or hot room does not necessarily signify an impure atmosphere; we may have a room cold, and the atmosphere be still terribly impure. The unthinking never take this into account, and are apt to confuse the term warm with impure, and the term cold with pure atmosphere, as far as the rooms they are in are concerned.

The proper way to remove the vitiated air is by means of vent-ducts, or vertical flues leading from the rooms to the roof of the building. These flues should have an aggregate cross-sectional area at least equal to, and preferably about ten per cent. greater than, the cross-sectional area of the fresh air inlets; and should be situated on the opposite (preferably diagonally opposite) side of the room.

The vent-ducts should have openings controlled by registers near the floor and near the ceiling at the same time. The cross-sectional area of the registers should be twenty-five per cent. more than that of the vent-ducts.

The bottom register is the one ordinarily to be used, for the vitiated air, being heavy, sinks to the floor, while the fresher, unpolluted air rises to the ceiling. When the people in the room are smoking profusely, it is better to close the bottom and open the top registers of the vent-ducts, for the smoke rises to the top, and is then more speedily removed.

These vent-ducts cause a gentle draught in the same way that the chimney of a steam boiler or hot-air furnace does. The temperature in the room being higher than that of the external air, the temperature of the vent-ducts is also higher, and consequently a draught, or removal of the vitiated air, is secured, the amount depending on the area and height of the duct, and the differences of the temperature of the external air and the air in the room. This system is known as natural ventilation.

To make this removal of vitiated air still more rapid than is secured by natural draught, just mentioned and explained, one of several expedients may be adopted. An exhaust fan, driven by steam or electric power, may be placed near the top of the vent-duct, and the air exhausted from the duct by means of the fan, thus increasing the fresh air supply through fresh air inlet. This is frequently adopted in public buildings where the rooms are at all times full of people. Or the temperature of the air in the vent-ducts, and consequently the draught and removal of the vitiated air, may be increased by any of the following means:

1. Gas jets may be burned inside of vent-flues, near the bottom.

2. Steam risers, through which steam of high or low pressure circulates, may be run through the vent-ducts.

3. Such steam risers may have a large coil near top, or right above vent-flues proper.

For private homes or dwellings, natural ventilation suffices, but for public buildings, factories, and large halls either the fan or the steam system should be preferably adopted. The gas jets give out a comparatively little amount of additional heat, but are inexpensive in first cost and in running expenses.

In a paper on "The Relative Economy of Ventilation by Heated Chimneys, and Ventilation by Fans," read by Prof. Wm. P. Trowbridge, of the School of

Mines, Columbia College, before the American Society of Mechanical Engineers, Prof. Trowbridge decided that in all cases of moderate ventilation in rooms of buildings where, as a condition of health or comfort, the air must be heated before it enters the rooms, and spontaneous ventilation is produced by the passage of this heated air upward through vertical flues, such ventilation is faultless as far as cost is concerned. He considers this a condition of things which may be realized in most dwelling houses, and, in many cases, halls, school rooms and public buildings, inlet and outlet flues of ample cross-section being provided, and the heated air being properly distributed.

If, however, starting from this condition of things, more active ventilation is demanded, the question of relative economy of fan and heated chimneys is not so simple a problem. Prof. Trowbridge points out that ventilation by chimneys is disadvantageous under one point of view in any case, viz., the difficulty of accelerating the ventilation at will when larger quantities are needed in emergencies; while the fan or blower possesses the advantage in this respect, that by increasing the number of revolutions of the fan, the head or pressure is increased. This latter fact makes the fan preferable for the ventilation of factories, hospitals, or public buildings of considerable magnitude whenever, as is customary, the activity of the ventilation must be varied occasionally.

Where the power required is only a small fraction of a horse power, as in ventilating single large rooms, or small buildings, Prof. Trowbridge concludes it to be evident that as regards cost of fuel and the care and attention required, ventilation by heated chimneys is preferable, except, of course, for cases where a fan is driven for other purposes than ventilation, the cost of attendance chargeable to ventilation being then trifling, and the fan evidently being more appropriate.

The construction of the building, of course, enters as an important factor, and often precludes the adoption of the exhaust fan system. In large structures it is always important to take into account, and decide upon the system of ventilation before the plans of the building proper are finished, or finally adopted.

Manufacture of Colored Phosphorus Matches.

As the question of regulating the manufacture of phosphorus matches in Canada has been taken up by the Federal Government, I think it would not be amiss to refer to some of the experiences of Factory Inspectors in Great Britain, as white phosphorus is used in every match factory in Canada.

Phosphorus process means the mixing, dipping, drying, boxing and any other work or process in which white or yellow phosphorus is used, and persons employed in phosphorus processes are any who are employed in any room, or part of a factory where such process is carried on. This industry, lucifer match making, is one that is attended by great danger to the health of the employee, and all parts of the works where phosphorus fumes can be generated should be spacious and thoroughly ventilated. In old factories, all dipping, mixing, cutting and boxing was done by hand, except drying, and for this purpose fans were used. In the newer factories there is a mixing room, then a large room holding about twenty machines and each machine receives the blocks of wood, cuts them in single lengths, carries the matches forward, dips them into two compositions and passing them over a number of wheels to dry, delivers them in an hour and a half at the receiving table in boxes, when nothing remains but to put the covers on the boxes. The boxes are also made and labelled by machinery, and it now remains to be seen whether the almost total avoidance of handling matches will check that terrible disease, necrosis, or mortification of the bone.

The use of continuous machinery in the manufacture of matches has increased, and the ventilation of these factories in such a manner as to remove phosphorus fumes has occupied much attention. Various schemes have been tried, but the best means of ventilation are derived from a system of air inlets opening on a level with the work benches, or on the ground level, communicating with the main shaft of the factory. Where manual labor is superseded by machinery there are fewer cases of necrosis.

In factories where dental supervision is employed great improvement has been noticed. Too little attention appears to have been paid to the condition of the mouth and teeth, and there is more liability to phosphorus necrosis where teeth are decayed or ulcerated and the mouth unhealthy. Inflammatory conditions of the gums frequently produce localized necrosis. One form of this inflammatory disease of the gums, known as *pyorrhœa alveolaris*, is very insidious in its attack, rarely giving pain, but gradually affecting the jaw bone, and is considered a predisposing cause of phosphorus necrosis.

The channels by which phosphorus gains entrance to the body may be briefly mentioned. As far as can be ascertained this occurs for the most part by the inhalation of phosphorus fumes; but another channel, and of considerable importance, is the actual introduction of particles of phosphorus into the mouth direct from the hands of the workers. Persons engaged in boxing dry matches, and those engaged in dipping, frequently have stained hands, and it may further be noted that some individuals always have moist hands, and such moist-handed persons are more liable to stained hands than are dry-handed persons. It is even possible for phosphorus to gain entrance to the body through the skin of moist-handed persons. The actual handling of phosphorus paste scarcely ever takes place in wet phosphorus processes. The case is different with the boxers, as constant handling of match heads takes place during the operation of removing matches from the frames and inserting handfuls into the box.

Special regulations for lucifer match works are given as follows:

A.—For works in which yellow or white phosphorus is used.

(1) Every workroom in these works must be of a suitable size and height, with means of ventilation in working order, with exits easily reached, and must be entirely shut off from communication with living-rooms, kitchen, or sleeping-rooms.

(2) The mixing, dipping and drying-rooms must be separate, strongly ventilated and suitably planned rooms.

(3) With a view to complete renewal of air the windows and doors shall be thrown wide open at the midday pause, and morning and evening before and after the period of work. In rooms where there is any possibility that the materials containing phosphorus are scattered on the floor, a daily cleaning out at the end of work shall take place. The walls must be limewashed at least once a year.

(4) The sweepings of the rooms may not be stored in receptacles or cellars, but must be daily destroyed by fire.

(5) The clearing out of the drying-room may only take place after the fumes have been entirely drawn off.

(6) The stores of matches may only be kept in cool, airy places separated from the workrooms.

(7) Only quite healthy persons may be employed in the mixing, dipping and drying-rooms, and the workers in these rooms must be changed from time to time to other departments. The change must be effected at once on the smallest symptom of pain in teeth or jaws.

(8) The employer is bound to provide overalls for workers engaged in processes just named, and to see that these overalls for workers are taken off and aired at the close of work.

(9) The employer is bound to see that the worker's out-door garments are not taken off in workrooms, but are kept in a special cloakroom. He must also provide a suitable number of wash-basins and take care that the workers wash their face and hands and rinse their mouth before taking food or leaving the factory.

(10) The employer must see that no food is brought into the workrooms, and must particularly warn workers against eating anything before changing clothes, washing hands and rinsing the mouth. No worker may be in the workroom during the midday pause.

(11) The employer is bound to engage the services of the doctor to watch over the health of the workers. The doctor must examine every worker before entering and at repeated intervals, rejecting all who are scrofulous or have decayed teeth, and must enter the results of his work in a prescribed register open to an official inspection. The doctor must satisfy himself that the rules on behalf of the workers are observed and draw the attention of the employer, or his representative, to any infringements. The doctor is further bound to report every case of necrosis at once to the industrial authorities.

(12) The provincial medical officer must visit the works from time to time, and convince himself that these regulations are being carried out, and report on the results of his enquiry.

B.—For works in which only red phosphorus is used.

(1) The following materials may only be dealt with in special workrooms separated from other departments, red phosphorus, chlorate of potash, sulphuric antimony, and the like; chlorate of potash may only be stored in special separate receptacles.

(2) Preparation of the paste may only be entrusted to special workmen working under careful regulations.

(3) The chlorate of potash usually serving as tinder may only be used in a finely-ground condition and mixed with the inflammable materials such as red phosphorus, also finely ground, in a moist condition under full precautions against knocks, blows or friction.

(4) The preparation of the friction surface must take place in a separate room. Offences against these rules, in so far as they do not fall under the ordinary penal law, are dealt with under the Ministerial Order of September 30, 1857. A copy of the rules is to be affixed in every workplace, in a place open to the workers.

Such regulations, thoroughly carried out, would eradicate, or at least check, this dreadful industrial disease which sometimes turns the worker into a helpless cripple.

Manufacture of Brushes.

The pitch fumes, bristle dust and vapors with which brush making factories are sometimes filled to an almost unbearable degree, are conducive to serious ailments, and although pitch fumes are said to be healthy, the continual coughing induced by these fumes causes incessant irritation of the air passages, and must be fraught with pulmonary trouble. In the better class of shops a wide mouth furnace is placed over the cauldron of boiling pitch and is communicated with the interior by galvanized iron tubes. A gas jet is placed under the centre of the funnel to ensure a vigorous up-draft, which not only conveys the pitch fumes as they are generated, but also bears away the dust.

A few words just here may not be out of place in regard to the danger of anthrax poisoning from the manipulation of hair and hides in hair factories in the manufacture of brushes. The most frequent cases occur in factories where foreign hides and fleeces are used, and the danger would be greatly obviated if these

were dealt with at the point of entry into the country. Foreign importations are generally unwashed and undressed and should be subjected to steam sterilization.

Overtime.

The question as to whether overtime work in factories is profitable has occasioned much discussion of late among factory managers, and, with few exceptions, employers have concluded that it is not to their interests. Notwithstanding this, however, applications for overtime permits for last year show a decided increase over previous years, which can probably best be accounted for as the result of an increased demand for the product and the scarcity of trained female and youthful labour.

Ten hours' steady work per day usually taxes the full energy of the average person, and any overtime is certain, therefore, to lower the efficiency of the employee. In addition, besides increasing the cost of the product, as a result of the direct labour cost being usually one and one-half times what it is during regular hours, the overcharge expenses for overtime usually equal as much an increase as the direct labour, due to power cost, etc.

I desire here to quote the opinion of the secretary of a garment factory, as recited in the pages of the *Canadian Manufacturer*:

"Ninety per cent. of our employees are girls. I can only speak as to the effect of overtime upon this class of help. It may be that the same results do not pertain to men.

"When we first started our plant, we operated fifty-nine hours a week. We have gradually cut down our hours of operation until to-day we are only running forty-eight hours. And the output of our factory remains the same; in fact, we think the output per machine is larger to-day than it was when we were operating longer hours.

"We ascribe this to the fact that our operators all work piecework, and are intent upon turning out a certain production each week, in order to get the maximum pay.

"It has been our experience that every human being has a certain amount of vital energy stored up, and when this energy is dissipated he needs rest, and if he does not get it at home he will take it at his place of employment. We find that there are very few people who cannot use up all the vital energy that they have in eight hours out of the twenty-four. As far as I personally am concerned, I know that very often I can use up all my vital energy in four hours of one day, and after that time must change my occupation in order to get a rest.

"I have seen the matter of running plants in three eight-hour shifts discussed in magazines. I do not think it will work. The habit that has been enforced through centuries of labour cannot be changed by the fiat of the manufacturer who wishes to cut down his overhead charges in this belated century.

"You can work a man at night, but before he comes to work, while there are waking hours and the sun is shining, he will use up some of his vital energy at home or at some other employment, and by the time he gets to work he will have very little energy left."

Overtime Permits.

Emergencies in certain trades caused us to issue two hundred and forty-four overtime permits during the year 1910. This is a little in excess of last year, one hundred and ninety-one being issued during 1909. The reasons advanced for application are generally satisfactory, and there are few cases where the Inspectors feel justified in refusing to grant a permit.

Special Bake-Shop Permits.

Forty-seven special bake-shop permits were granted during the year 1910, as applied for under section 39, of the Bake-Shop Act, to meet the exigencies of trade on holidays.

Convention.

We have to again thank you for making arrangements which enabled two of our Inspectors, Mrs. Brown and Mr. Holmes, to attend the Twenty-third Annual Convention of the International Association of Factory Inspectors at Hendersonville, N.C., and Columbia, S.C., last August. The Inspectors always appreciate this privilege, as the papers read and discussed at these meetings are of special interest to those who are engaged in the work of factory inspection.

Agreement for Mining and Factory Inspection.

The following line of demarcation was agreed upon between the Mines and Factory Inspectors' Departments:

METALLIC.

Gold, Silver, Cobalt, Nickel, Copper, Iron Ore, Pig Iron, Zinc, Lead.

Mines, Smelters, Blast Furnaces, and Concentrators to be inspected by the Mines Department.

Steel making and other metallic plants to be inspected by the Factory Inspectors.

Steel Plants at Sault Ste. Marie.—Agreed that Mines Department will inspect blast furnace department, under Superintendent Watson, and Factory Inspectors will have supervision over other parts.

Steel Plant, Hamilton.—Agreed to jointly inspect this, and subsequently decide on line of demarcation.

NON-METALLIC.

Cement Mills.—Under Factory Inspectors.

Stone Quarries, Marl Beds (mining and crushing).—To be inspected by Mines Department.

Brick Yards, Sewer Pipe, Tile.—Under Factory Inspectors, excepting deep mining excavations, such as Don Valley, which shall be inspected jointly, and subsequently disposed of.

Carbide of Calcium.—Under Factory Inspectors.

Corundum.—Two mills at present in Province; mine and mills to be inspected by Mines Department.

Feldspar.—Mining only being done in Province; under Mines Department.

Graphite.—At present two mills, one at mine and other two miles distant; under Mines Department.

Iron Pyrites.—One acid plant in Province, at mine; both mines and acid plant under Mines Department.

Mica.—Mining and rough cobbing at mine; under Mines Department.

Mica Manufacturing Plants.—Under Factory Inspectors.

Gypsum.—Mining under Mines Department.

Gypsum.—Grinding under Factory Inspectors.

Phosphate of Lime.—Grinding and manufacturing under Factory Inspectors.

Phosphate of Lime.—Mining under Mines Department.

Talc.—One mill at present in Province. Mine and mill under Mines Department.

Quartz.—Mining under Mines Department.

Anything not provided for in this schedule to be dealt with as it arises, after consultation between the two Departments.

TORONTO, 19th September, 1910.

CONCLUSION.

A list of accidents is herewith appended. In connection with this, I desire to say that employers in nearly every case are willing to try and prevent accidents by providing suitable safeguards, but there are exceptions who will only do so under compulsion, and where such will not militate against the production of the machine. We also have the employee who removes or objects to using guards, but in almost every case the employer, who did not see that guards were provided, and the employee who did not, or would not use them, are the first to look to this Department for advice or protection.

All of which, I have the honor to submit.

Most respectfully yours,

JAMES T. BURKE,

Chief Factories Inspector.

REPORT OF INSPECTOR HENRY A. CLARK.

SIR,—I have the honor to submit a report of the inspection of factories and shops in the district assigned to me for the year ending December 31st, 1910.

I am pleased to inform you of the steady and rapid growth of industries throughout the Province. Each visit of the Inspector finds new industries established, and older ones augmented by additional space to make room for the increasing demand for manufactured articles. It is also pleasing to note that new factories are being established as well as old factories being enlarged, and in most cases these are provided with all modern appliances to date, namely, light, heat, ventilation, and such other sanitary appliances as may contribute to the safety and comfort of the employees, as well as the quality and condition of the material being manufactured. This is very pleasing to the Inspectors, and shows both good judgment and enterprise on the part of the manufacturer. Of course, there are some, and I presume there always will be some, who persist in old methods with antiquated machinery congested in such a manner as to render their operation most ineffective. Such machines are, in addition, usually surrounded with a lot of refuse, thereby making the labors of the operator more hazardous. These places require the constant attention of the Inspector, and to my mind such manufacturers were never intended to play a part in this scientific manufacturing age, and are sure sooner or later to succumb to their more enterprising competitors.

VENTILATION.

It seems to me that this is, at once, one of the most important and one of the most difficult problems of factory life. The langour and lassitude of the school and the factory are direct product of vitiated air, an unfailing concomitant of crowded rooms, unprovided with foul-air outlets. It is not the hard work of the school or the factory that sends the teacher or the operative home jaded, listless,

anaemic, and verging on headache. It is the air, fifty times breathed and as often repoisoned. This whole matter demands a radical and most vigorous overhauling.

For my part, I believe, that with all our science and invention, we have yet to learn how to ventilate. At the bottom of the difficulty lies the fact that different people are so differently constituted. One is too cold when and where another is too warm. Then the ignorance. Many people identify coldness with purity, and warmth with foulness, not knowing that the coldest air may be foul, and the warmest pure. In many rooms the only ventilators are the doors and the windows—the latter sometimes hermetically sealed. How to heat, light and ventilate these rooms, at one and the same moment, this is the question—a question I must leave to wiser heads than mine. The man who solves it will be a benefactor to the factory and the world. Cold air is more dreaded than foul, especially by women; they feel the one, they are quite unconscious of the other. Of course, also, draughts are a real danger. In new shops with spacious, sunny rooms, you can note the effect in the workers' faces and the better work done. Pure air and a pleasant environment will pay their cost a hundred times over in the greater amount and the superior quality of the work put forth. On some employers' minds the great and unquestionable truth is beginning to dawn, that pure air, cheery surroundings and short hours pay best in the long run. It will be a blessed day for all concerned when it flashes its full noontide splendor on the minds of them all. Employers will tell you that the workers do not complain of foul air and the like. Very true. No one complains until he feels hurt. The inhaler of foul air feels nothing amiss; yet he is hurt all the same. His wan face and lack-lustre eye tell you that. In lack of better means, I would say, fling wide your doors and windows at noon, before work begins, and when it ends. Of course, all work-rooms have doors, but marvellous to relate, there are actually rooms without windows, or with windows religiously stuffed and fixed to exclude the winter air. Just think of it; a crowd of human beings boxed up in a den for ten long hours on end, exchanging poisoned breaths! This adds little to individual strength, or to national vigor. You owe phthisis to a microbe, and you owe the microbe to his congenial habitat, the foul air cell. Bombard him with drugs if you will; but how would cutting off his supplies act? One would like to know just what percentage of Canadian tuberculosis is hatched in our industrial hives. We have two systems of artificial ventilation now in use, the pressure system, and the exhaust system, both good as far as they go; but much yet remains to be done.

Elevators.

I deem it a serious defect in the Shops Act that it does not demand a report of accidents from mercantile houses. Not a few serious, and even fatal, accidents have occurred in some of these, in connection with elevators. This very grave matter does not seem to have received, hitherto, its due share of consideration. This dangerous mode of transportation calls aloud for ceaseless vigilance, frequent and minute inspection, and the manipulation of none but the most experienced and capable hands. Less than this is simply a wanton exposure of human beings to maiming, crippling, and death. Lack of it may result in what we call an accident, whose true name is crime. No boy should be allowed to handle an elevator; and too much pains can never be taken over guards, cables, and gates. Reform is needed here. And reform should begin with construction. The first great question is, "How is your elevator built and equipped?"

Safety is what we are after: (1) Protection of tenants and employes from the moving machinery and from falling down hatchways; and (2) That of opera-

tives and passengers generally while in transit. For the first we need hatchway enclosures, or safety gates; for the second, wainscotting or grill work for the sides of cages; also safety attachments regarding excessive speed. The hatch-bar is not protection: but there are places where a better cannot well be used. Gates are better, and are of two kinds, automatic and half-automatic. The full automatic gate rises or falls of itself as the car approaches or leaves the floor landings. The half-automatic gate is raised by the operator at the landing, and shuts of itself as the car leaves it. And the simpler the apparatus the better. Insurance companies sometimes call for trap doors at each floor as a protection in case of fire. These are of two kinds: the automatic and the fusible link. The former opens and closes of itself as the car passes through; the latter is kept open by a supporting chain with one fusible link which the fire melts, and the door drops. This is rated as by far the best trap door. Some new buildings have fire-proof hatchways; all should have them. Cars should be protected on all sides save the entrance. Some elevators have safety catches, with speed governors to operate them. Every power elevator should have two main lifting cables; and I have heard of three, the third being a little longer than the others, and held in reserve for emergency. After all, the cable is the main thing; and very hard to inspect it is, to any satisfactory purpose. It has been estimated that 50 per cent. of elevator accidents (so-called) are due to pure carelessness, 20 to falling down hatchways, 10 to injuries received while working about the machinery, and 20 to runaways or the breaking of cables and dropping of cars.

Child Labour.

I have given this part of my work a great deal of time and during the year have had some fifteen prosecutions for employing children under fourteen years of age, and intend to take action against all employers that employ children under age. So much has been written on this subject that we must cease writing and act. Child labour is a deadly menace to national virility as well as a crime against humanity at large, not to mention the woes of the poor little victims themselves.

Canning Factories.

I have visited the canning factories in my district during the year; while the factories have not been so busy this year on account of the shortage of fruit, I am very pleased to note the great change in the condition of most factories in the way of improved conditions, but there is a lot of work to do yet to get some up to the standard, and I am bound to have the plants and output come to the standard.

Other Features.

All other features pertaining to our Factory Laws and Shops Act have had my careful attention during the year. I cannot give a detailed account of what has been done in my district, but I have tried to give all matters the very best of my attention and am pleased with what has been done to improve conditions for the workers. I have endeavored to be fair and just with all parties I have to deal with. The work of an inspector is not done in flowery reports.

Before I close, I must thank our chief inspector for his kindness shown to us all, and his following-up system, which is a great help to the inspectors and the means of better results in the inspection of factories.

Henry A. Clark.

REPORT OF INSPECTOR ARTHUR HOLMES.

Sir,—I have the honor to submit a report of the Inspection of Factories and Shops in the district assigned me for the year just closed, 1910.

It has been a very successful year from a manufacturing standpoint, especially so in the lighter branches where females are mostly employed. There has also been a general scarcity of female help during the summer months. Quite a number of the factory operators leave their places and secure a position at some summer resort, thereby securing a change of occupation with no financial loss, and the outing improves their health. The majority return in the fall to take up their duties here again. One or two of the large manufacturing firms have secured places where any of their employees can go for three weeks in summer time and spend their vacations at a minimum cost.

Overtime.

Almost everyone applying for a permit to work their female help overtime gave as a reason their inability to secure experienced help. In speaking to employers on this question very few of them have a good word to say of the overtime system, realizing from a business standpoint that "you cannot burn the candle at both ends." The employees would far rather work a couple of evenings a week than Saturday afternoon under the permit. I do not know of any firm who worked in excess of sixty hours per week. Personally I am opposed to all overtime, and believe that it would cause no particular hardship to eliminate it altogether, which would place everyone on the same footing.

Underground Workshops.

One feature of industrial life that is creeping into the city is underground workshops. It is almost impossible for them to be healthy. Quite a number of these places are used as tailor shops. They have low ceilings, not more than about seven feet high, and artificial light is used almost all the time. Take, for instance, the heating of irons, with a closet in close proximity, and with no means of ventilation except a small window even with the street, while if the wind is blowing in that direction it is impossible to have it open for the dust blowing in. To make sure that my inspection report was fairly sound, I had Dr. Bell, of the Health Inspector's Department, accompany me, and he also condemned them as not fit places to work in. The firms have been notified to find other workshops.

Rainy River and Soo District.

In company with Inspector Clark I was deputed to inspect the industries located between Sudbury, Rainy River and Kenora.

In the Soo everything was booming. All the industries with the exception of the Sulphide Mill were in full operation, which was in strong contrast with my previous visit two years ago, when everything was practically closed down. Every facility for inspection was given us, and our recommendations were carried out.

I am pleased to report that I found the great majority of saw mills in good shape, and almost entirely free from child labor. Having made three inspections in that district, I know the great advances that have been made along these lines.

The law relating to certificated engineers was fairly satisfactory, there being but very few violations coming under my observations; and, as those were through ignorance of the law, they promised to comply with the same at once.

Laundries.

Improvements are being made in laundry machinery. The old system of heating mangles is gradually being replaced by electric heating, doing away with the fumes that generally accompany the burning of gas. The up-to-date mangles are splendid machines, every part being protected, making it almost impossible for anyone to get hurt. The removal of steam from laundries, dye houses and hat factories is a problem that seems hard to solve. Experiments are being made continually along these lines, but nothing better has been found than the ventilating fan.

In speaking to foremen and superintendents on this question, they all claim that there is no healthier part of the factory to work in than where the dry steam is inhaled, as there is less time lost through sickness than in any other department; but, even if not unhealthy, the surroundings are not what one can call ideal.

Machinery.

The mere installation of safeguards will not necessarily prevent accidents. It should be one of the stringent rules that the machinery should not be operated unless the guards are in place. Hardly a week passes but I find elevator gates either propped with sticks or nailed up.

An accident happened a few weeks ago where a young man propped an automatic closing gate while he went for a load. In the meantime the manager came along and wanted the hoist, and not knowing that the gate was propped up took the hoist to the next floor. The result was disastrous, as the young man came along expecting the hoist to be where he left it, and fell to the bottom of the well-hole. It is impossible for inspectors to prevent accidents of this kind. Another very regrettable fatal accident on a hoist was caused by using trap-doors over hoists as a thoroughfare, with the result that the hoist ascending squeezed an employee fatally between door and hoist guides while in the act of crossing over the doors of the same.

It is well to remember, despite all the rules and regulations that may be adopted, and all the safety devices which may be attached to machines, together with miscellaneous forms of guards that have been provided, and also the posted warning signs, that all these are useless unless every employee is careful to see that these are maintained, and that they themselves are educated to watch for danger and to warn others of danger. Some of our suggestions at times may appear to be far fetched. Some superintendent will say: "That has been that way for twenty years and no accident has happened," while in another factory with the same conditions an accident has taken place. We try to profit by the unfortunate experience of others.

Fire-Escapes.

Since the Order-in-Council was passed relating to fire-escapes, I have had some trouble in getting the erectors of same to see eye to eye on the construction of specifications, as some changes and alterations had to be made to come up to our standard. There have been quite a number erected since, and they are a wonderful improvement on the old style. They may not be any more ornamental, but in case of need they are decidedly more useful. Very little consideration seems to be given in erecting new buildings as to outlets in case of panic or fire. You are met with the argument that it is a modern fire-proof building, and could not burn down.

Probably not, but the contents are different, and a small blaze is liable to occur at any time. That is our theory, which has been fairly well tried out. The owner of a building when asked to place a fire-escape on the same thinks that if it suited the architect and fire underwriters nothing more need be said. However, our duty is to see that the employees have an opportunity to escape in case of necessity. Every building used as a factory should have at least two outlets.

Bake-Shops.

While there are a large number of very nice bake-shops in this city, there are some that could stand a lot of improving. Until such times as all basement bake-shops are condemned we cannot expect much improvement. The majority of underground shops are dark, damp and unwholesome. They are almost impossible to keep clean, as the only light in many of them is artificial, and there is not very much of that.

I notice that the City Medical Health Officer is going to make war on the house fly this coming season. The average bake-shop seems to be the home of them, and in my opinion there is not any more excuse for having them around there than having them about your own home. If windows and doors are left open with no protection you will soon have the house full of the pests, but with a little care they can be kept out. I have spoken to a great many on this question, and ordered door and window screens in all cases; but unless such doors are kept closed they are useless.

Child Labor.

One of the important features in regard to child labor was a meeting arranged between the truant officers of the City of Toronto and this Department. As arranged, the inspectors of both Departments will hereafter work, as I believe, harmoniously together, and thus guard against overlapping. I moreover apprehend that good results will come from this meeting. One illustration: After a truant officer has investigated a case asking that the child be permitted to remain away from school on account of being needed to help support the family, if such investigations are found to be correct, then a permit is issued allowing the child to remain away from school, but the permit states that such child is not allowed to work in a factory until the age of fourteen years has been reached.

We have had some trouble in the past with children having permits signed by the school principal or school inspector, who were under the impression (as also some employers) that this gave them exemption from the Ontario Factories Act. Another beneficial feature will be that when we find a child under the age of fourteen we can report the matter to the truant officers, who will see that such children attend school.

One great weakness in our law is a proper working certificate. A great many parents are willing to send letters that their child is of the proper age, knowing them to be false, and the child is also taught to be untruthful. So many cases have come under my notice that I refuse to accept any unless accompanied by an affidavit properly sworn to before the proper officials.

I am inserting an extract dealing with Child Legislation in six European countries on this question of Child Labor, which may be interesting:

Child Labour Law in Europe.

"Bulletin No. 89, issued by the Department of Commerce and Labour, deals with labour laws affecting the employment of children in six European countries, viz., Austria, Belgium, France, Germany, Italy and Switzerland. All of these nations have recognized the existence of the child labour problem and have attempted to solve it by means of legislation, restricting the gainful employment of children, and by providing a corps of officials whose special task it is to secure compliance with the terms of the law.

"The experience of Germany and of Switzerland is particularly suggestive for the United States, because there, as in this country, there is division of legislative and administrative powers between a central government and the local governments.

"This article, the results of a study by Dr. C. W. Veditz, is not confined to a presentation of the details of the law concerning child labour, but discusses as well the relation of the school and labour laws, the organization and actual work of the labour inspectors, and the present extent and nature of child labour in these countries.

"In most of the countries included in this study the limitations upon child labour are not all found in legislative enactments. In many cases the laws themselves constitute merely a framework, which is filled out by means of numerous decrees, ordinances, police regulations and other legislative or administrative measures. These measures sometimes constitute a relaxation of the rules laid down by the statute, when, for instance, the administrative authorities are given far-reaching power to set up 'exceptions' to and 'exemptions' from the operation of the laws, and exercise these powers in such a manner and on such a scale as partially to abrogate the law. Sometimes, on the other hand, administrative measures result in a much stricter regulation of child labour than appears on the face of the law.

"Austrian legislation fixes the regular age of factory employment for children at fourteen years, but children of twelve or thirteen may be employed if such employment does not interfere with school, is not detrimental to health, and does not exceed eight hours a day. Below twelve years no regular industrial employment is permitted. In a considerable list of occupations regarded as dangerous or injurious no employment under fourteen is permitted, and in many the employment of children of fourteen and fifteen is much restricted. The hours of labour for children under sixteen must not exceed eleven, though for a few industries twelve hours are permitted. Night work between the hours of eight and five is prohibited for all children under sixteen, except that in industries with special needs night work is permitted for children of fourteen and fifteen.

"The complaint is frequent in the reports of the labour inspectors that the staff of inspectors is insufficient to carry out the laws with any degree of severity, and that the increase in the number of inspectors has not kept pace with the increase in the number of establishments subject to inspection. Only one-fourth the children under sixteen actually in industrial employment have the benefit of an inspector's visit during a single year. A large number of establishments subject to the law have never, according to reports, been inspected even once, and to inspect all of them with the present staff would require fifty-nine years.

"A recent Austrian official investigation into the extent and nature of gainful employment among school children under fourteen years of age indicates that in various parts of the empire the proportion of these children regularly at work varies from twenty to nearly sixty per cent. A large proportion of the working pupils are employed in agriculture and domestic service, oftentimes at kinds of work which require more strength than children under fourteen may reasonably be supposed to possess. Orphaned children and illegitimate children furnish a relatively larger quota of child labourers than the other pupils. In several of the provinces it was discovered that half of the working pupils began work before they were eight years old, and a considerable number began before they attained the school age of six years.

"In Belgium the law regulating child labour permits industrial employment at twelve years, although between twelve and sixteen the conditions of work are much restricted. For an extended list of occupations regarded as dangerous or injurious, employment, and even presence, in the factory is entirely prohibited. For children under thirteen the hours of work per day must not exceed six. For children under sixteen the hours in many industries are limited to ten, though in the cotton industry the limit is eleven and one-half per day, or sixty-six per week, and in other textile industries the limit is eleven per day. Night work between the hours of nine and five is prohibited for males under sixteen and all females under twenty-one in a list including many industries.

"In Belgium, also, the number of inspectors is reported as inadequate, and inspectors complain that the fines imposed for violation of the law are altogether too low to produce proper deterrent effect, particularly in view of the numberless devices employed by certain manufacturers to circumvent the law.

"In France the age at which industrial employment may legally begin is thirteen, but if the school requirements are satisfied and a physician's certificate of physical fitness can be secured, employment may begin at twelve. In occupations regarded as dangerous, injurious, or unhealthful, employment under eighteen years is prohibited, or even presence in certain classes of factories. The hours of labour are limited to ten per day. Night work between the hours of nine and five is prohibited for all children under eighteen.

"In France the official statistics show that the number of inspectors has increased over thirty per cent. during the past fifteen years, while the number of establishments inspected has doubled and the number of persons employed therein has increased sixty-five per cent. At the end of 1908 there were still one hundred and seventy-three thousand establishments, subject to inspection, that had never been visited at all. Many of the visited establishments had not been inspected for two or three years, for in 1908 the officials were able to inspect only one hundred and sixty-two thousand establishments, each department inspector visiting during that year at least once an average of over twelve hundred concerns.

"Certain provisions of the French law, like that of medical examination of all children believed by the inspectors to be engaged in occupations injurious to physical development, are considered by most of the inspectors to be somewhat illusory. Much the same thing is true of the provision that all child labourers must have an age certificate. Frequently the certificates are altered, or carelessly made out, or actually forged. This has been the case to a notable extent in connection with the large numbers of Italian children imported into France by padrones for distribution among glass works and tile yards of France, as well as for employment in boot blacking and chimney sweeping. This system of importation became so serious as to lead to international negotiation between Italy and France with a view to its curtailment.

"The French inspectors complain of leniency in punishing violations of the law, just as in other countries covered by this study. The inspectors report great resourcefulness, both on the part of employers and children, in escaping detection. To stimulate the agility of children in disappearing when the inspectors visit their works, some glass manufacturers have offered prizes for the children who could hide themselves the most quickly at a given signal.

"The German child labour law permits industrial employment to begin at fourteen years, although work not exceeding six hours per day may begin at thirteen, if the required school attendance has been completed. For occupations considered as dangerous or injurious the employment of children is prohibited, or is permitted only under special regulations. For children under sixteen years the hours of work are limited to ten, and night work is prohibited between the hours of eight-thirty and five-thirty.

"In many respects the most radical departure in child labour legislation on the Continent is found in the German child labour law of nineteen hundred and three, which attempts to regulate the employment of children in their own homes and under the direction of their parents. This law owes its enactment largely to the systematic investigation inaugurated by a national organization of school-teachers who became convinced that the factory laws had in many instances driven the child labourers out of factories into home industries and into non-industrial pursuits not reached by previous legislation. The new law is not proving easy of enforcement, and some time will be required to draw valid conclusions in regard to its actual effects. The German inspectors are able to visit only about half of the establishments subject to the factory laws. In some States of the empire only one-fourth are inspected. Here, as in other countries, only a small proportion of the offences reported against the law were in any way punished.

"In Italy the law fixes the age at which industrial work may be begun at twelve years, though for all workers under fifteen years certain restrictions are imposed, including the requirements of a physician's certificate of physical fitness, and in dangerous and injurious occupations employment is entirely prohibited. The hours of labour are limited to eleven per day between the ages of twelve and fifteen. Night work between the hours of eight and six (or between nine and five between April and September) is prohibited for persons under fifteen years and for all females.

"The Italian experience with their factory inspection has been too short to justify any general conclusion with regard to efficiency. The system, in fact, does not yet apply adequately to the kingdom as a whole, but only to certain industrial portions.

"In Switzerland the federal law prohibits the factory employment of children under fourteen years, but for dangerous or injurious occupations, which include an extended list, employment may not begin under sixteen. The maximum hours of labour per day under sixteen years are eleven. For all employees under eighteen years night work between the hours of eight and six (or between eight and five during June, July and August) is entirely prohibited.

"Switzerland presents a bewildering variety of cantonal labour laws, as well as considerable divergence in the enforcement of the federal law. The matter of the revision of the entire law is under consideration, and the enactment of a new law is expected in Switzerland at an early day.

"A striking feature of the study in Switzerland relates to the employment of school children outside of school hours. A recent investigation furnished much detailed information showing the employment of very large numbers of children working long hours and at night under such conditions."

Convention.

The twenty-third annual Convention of the International Association of Factory Inspectors was held at Hendersonville, N.C., and Columbia, S.C., on August 23rd to 26th.

It was my privilege to attend as a delegate from this Province. While not as large numerically as previous Conventions, due no doubt to the great distance from the manufacturing centres, it was a very profitable and enjoyable one. Not many papers were read, owing in part to the fact that considerable time was devoted to visiting some of the large cotton mills in different parts of the State. Every facility was given the delegates to make a thorough inspection of these plants. A large number of children are employed therein, ranging from twelve years of age upwards, that being the age allowed by law in that State. There factory inspection laws have only been in force about two years. They are doing good work with the small staff that is engaged in the work of inspection. The South is noted for its hospitality, and everything was done to make our visit both beneficial and pleasant.

Complaints.

I have had about the usual number of complaints, and have given them my first consideration. Some of them have been well founded and were remedied at once, while a few seemed to have nothing but a strong imagination to support them. However, I am always pleased to hear about any matter that escapes my observation, as I realize that the employees are the proper ones to know any special conditions under which they work, and it is quite possible for an inspector to go through a plant and not see everything.

In a report of this kind it is almost impossible to go into details of inspection, but I have tried to discharge my duties. I have also been received with the utmost courtesy by the manufacturers, and every opportunity given to make a faithful inspection, and have found them in almost every case willing to comply with my recommendations and the law.

Arthur Holmes.

REPORT OF INSPECTOR ROBERT HUNGERFORD.

Sir,—I have the honor to submit this, my third annual report of factories situated in the district assigned to me.

I am pleased to report a marked improvement in the conditions existing in the factories of the Province. There is such a decided similarity between the conditions existing at the present time and at the time of my last reporting, I find it extremely difficult for one who reports at any considerable length to differ to any great extent from reports formerly submitted. I presume, however, that what is required is a truthful statement of facts regarding the conditions existing in the factories as observed by me within the past year, and if they are in many instances similar to those reported last year it is wholly on account of the existing circumstances, and not through any fault of mine.

The year just closed has been, I suppose, the most prosperous and progressive in the history of the Province. The industrial and commercial advancement has been of such a marked character that the fact is beyond dispute that our Province has more than kept pace with the other Provinces of the Dominion. The unprecedented establishment of new industries, the vast increase in the output of manufactures, the general growth of our industrial institutions, the great demand for labour, and the comparatively satisfactory conditions existing among the working classes, the healthy and sound conditions of our mercantile institutions, the existence of prosperity, pleasure and satisfaction among all classes of citizens, must indeed be most gratifying to those who take a keen interest in the advancement of the Province, and prove beyond the slightest doubt that Ontario is getting her full share of the good things the world has to hand out.

While pointing out the general satisfactory advancement of the Province, I desire to call attention throughout this report to the many improvements made in factory inspection. New machinery is daily being introduced into the industrial field. Many new accident preventing devices have been invented and put into use within the past year that were hitherto unheard of. There is a marked improvement in the feeling existing between the manufacturer and the inspector. There is also a decided confidence among the working classes that the inspector is endeavouring to discharge his duties in a fair and impartial manner. The employer looks no longer upon the inspector as a trouble-maker, but as a necessity, and in many cases welcomes his visits and willingly avails himself of any advice we may have to offer him that will tend to prevent accidents to his employees or improving the conditions of his factory.

Some few years ago when an inspector deemed it necessary for the safety of the occupants of a factory to have outside fire-escapes provided, he would order the work done, but from the fact of there being no specifications to which those fire-escapes were to be built endless trouble arose. The contractor for the erection of the fire-escape, in his desire to figure lower than his competitor, would supply material of inferior weight and insufficient strength, and in consequence of this much dissatisfaction and trouble were engendered and many inferior and practically worthless fire-escapes were erected. Within the last two years an Order-in-Council has been passed specifying precisely how fire-escapes must be made, as well as the size and kind of material to be used; the result of this is that the fire-escapes being erected now are thoroughly practicable, and can be used with absolute safety by as many people as is possible to get on them at one time.

We have arrangements with truant officers which will greatly assist in the enforcing of the law against child labour in factories. And I might also mention among the recent improvements in the working out of systematic factory inspection that Chief Inspector Burke has instituted an office system that enables us to follow up all recommendations not complied with within a reasonable time, with a view to seeing that there is no unnecessary delay in their completion. This system also enables us to spend a greater portion of our time where most necessary, and where the greater benefits can be obtained. My experience has taught me that in some cases there is a slight inclination on the part of the factory owner to look carelessly on our recommendations when made for the first time, but, when promptly followed up, showing a determination on the part of the inspector to have his orders carried out, the work is done without further delay.

The factory inspector may have some unpleasant duties to perform. He is in the same position as many public servants. He has many "bosses," among whom are fault-finders, and it is always an easy matter to find fault. He is, indeed, for-

tunate if he succeeds in retaining his fair share of respect from the general public. But while there may be unpleasantness, speaking generally, my work has been pleasant to me and neither unpleasant nor unprofitable to those with whom I have been brought in contact. In my desire to be fair I feel that I would be untruthful to myself and unjust to the manufacturer if I were to omit from this report some reference to their conduct towards me when calling upon them in the discharging of my duties. There are of course exceptions, but, generally speaking, I have been courteously and cordially treated, and on the whole my work has been greatly facilitated by a willingness on the part of the manufacturer to comply with my recommendations, seemingly, realizing that they were advantageous to them as well as beneficial to their employees.

As a result of my last year's work, I am pleased to report most satisfactory results. It has been a general satisfaction to me to find in many places where I had experienced some slight difficulty in persuading the factory owner to supply guards for dangerous high speeded machinery, to find upon my last visit the guards all installed and owners as well as operators satisfied that they are most useful in minimizing accidents in the factory.

There is a phase of the annual report of factory inspection which might seem somewhat strange to the general reader, and which it might be well to call attention to at this particular stage of my report, that is the fact that while I and the other inspectors throughout the Province are reporting satisfactory results of our former work and the general use of accident preventing devices, there is a possibility of our appended list of accidents increasing. The situation may seem to some extent peculiar to the person who has given the matter no consideration, or make good food for the sceptic who is always ready to find fault with the work of others, though he seldom does anything himself. The peculiar situation can easily be explained in this way: It has always taken some considerable time to educate people in the requirements of a new law, and it has been with considerable difficulty that the manufacturers have been educated to the necessity of reporting to the department accidents happening in the factories, and I may say that even up to the present time while the larger percentage of the smaller factory and mill owners are unaware of the necessity of reporting of all accidents necessitating the absence from work of the employee for six or more days as is required by law. Then there is another good reason for the augmentations of our lists of accidents: The great development of manufacturing throughout the Province as well as the introduction of so many new industries has greatly increased the field in which these accidents can happen. It will therefore be plainly seen by the most ordinary observer that though the percentage of accidents may be many less our lists of accidents are being augmented by the enlargement of the field in which accidents happen, as well as by the manufacturing public becoming more educated to the necessity of reporting each accident to our department.

One of the most important as well as a very interesting branch of factory inspection is the guarding of dangerous machinery. While we are all well aware of the fact that it is impossible to entirely eliminate accidents among machinery, it is quite possible to minimize them to a very great extent by the use of guards and safety devices, as well as the proper arrangement of machinery and the covering of dangerous cog gearings, and the guarding of dangerous pulleys, beltings, etc. For this reason the Inspector should at all times be competent to instruct the factory owner in requirements and uses of such guards and devices.

A great deal of information and knowledge is acquired by the investigation of accidents in as much as the knowledge of circumstances surrounding an accident

happening under similar circumstances in another factory. A pronounced carelessness on the part of people constantly employed in the operation of dangerous machinery is very noticeable to the Inspector; this carelessness is acquired by the continued use of such machinery without having an accident. I have no desire to imply that the average manufacturer is not anxious to prevent accidents or that he is unwilling to adopt any reasonable means of guarding dangerous machinery. I do say, however, that his constant association with dangerous machinery without having had an accident causes him to become indifferent to many of the dangers at all times apparent to the inspector, who is always alive to such dangers owing to his frequent investigation of accidents among similar machinery. The inspector has the advantage of seeing all the different ways of arranging machinery, as well as the many devices for avoiding accidents, and should be in a position to give the factory owner very valuable information along these lines, and to manifest to him the many advantages accruing from factory inspection to all people engaged in manufacturing.

Female Health.

Being quite mindful of the selfishness of some employers and their total disregard for the health and physical condition of their female employees, I have been most cautious and careful in the issuing of overtime permits. My practice has been to issue them only in case of absolute necessity, and in every case I have investigated the conditions and circumstances before issuing such permits. I am firmly of opinion that when a woman or girl has been worked ten hours in one day she has worked at least two hours too many, and I think that instead of extending the hours we should use every fair means of lessening them. Quite true some women want to work overtime in order to increase the amount of money in their envelopes on pay-day, but the desire of these few should not influence us in any way, as we have long since realized the necessity of guarding some people against themselves. I believe, in so far as the larger manufacturing establishments are concerned, the law regarding the hours of labor among women is well observed. There may, however, be some slight violations of the law in country villages among milliners, tailors, and dress-making shops, not through any desire to violate the law, but because of the ignorance of its existence and the inability of the inspector to visit such places at the proper time.

Lunch Rooms.

In writing a general summary of my report it is a great pleasure to me to be able to report to you the rapidly growing popularity of the lunch room for females. This is an adjunct to almost every up-to-date factory, and was a short time ago looked upon as an unnecessary luxury, but is now considered quite a necessary convenience. These lunch rooms are kept clean and in order by an attendant, who also supplies hot tea and coffee. Chairs and tables are supplied, which greatly add to the comfort and convenience of the employees.

I have often thought what a great advantage it must be to an employing firm to study the comfort of their employees and make conditions in the factory just a little better and more pleasant and congenial than they are in other factories, the advantage being not only in the general satisfaction among the people employed but in the desire of other people to leave other employers to go to work there. I know of one firm which pays its mechanics just a little more than the union rate of wages, and treats their employees just a little better than other firms in the

way of shorter hours, etc., the consequence being that there are always people knocking at their door asking for employment while other firms are advertising for help and are unable to get it. This firm has not only the advantage of being able to secure help, but are assured of the very best help, owing to the desire on the part of the working people to leave the employ of others and go where they can get the best treatment.

Employers.

It may seem rather strange for me to say that I am pleased to report that we occasionally receive complaints from employees in factories. It is true, nevertheless; and for my part I am always pleased to receive them and to attend to them without delay. I am pleased to get these complaints because I am well aware that there is ample chance for violation of the law when I am not there to see them. It has hitherto been a practice of many workmen in factories to grumble among themselves, and complain to the outsider of the negligence of the inspector when they saw any violation of the law, though they knew that it was no fault of his and that it was impossible for any inspector to be all over his district at the same time or to spend all his time in any one factory. This procedure we have formerly found fault with, and when the violations of the law have been brought to our notice we asked the people involved to acquaint us of the facts, and give us at least a reasonable chance to adjust them before finding fault. In some cases this is now being done, and that is why I say "I am pleased to report that complaints are being made to our department direct." I might say further there seems to have been a lack of confidence in the inspector—and, indeed, it may to some extent still exist—or a sort of suspicion that he would inform the "boss" of the name of the complainant. I wish to state, however, that these complaints may be made in absolute confidence, and with the utmost assurance of their receiving the immediate attention of the department.

Accidents in Factories.

The frequent occurrence of accidents in factories is a subject to which an inspector probably gives his greatest attention, not because there are not other branches of his work equally as important, but because of the necessity of constant drumming in the ears of the employer as well as the employee the necessity of using guards on dangerous machinery. In many cases it is a sort of continuous fight, first with the factory owner to persuade him to get the guard and then with the employee to convince him to use it.

The wonderful progress of manufacturing industries in the Province, and the competition in the different trades, are very largely responsible for the frequency of accidents the result of which are often deplorable. To the person who has given this phase of factory inspection little or no consideration there is no conception of the wonderful magnitude of the subject. To people who are indifferent or to those who never allow their minds to carry them beyond their own little factory, it may seem unimportant; but those who think and inquire into the matter are usually shocked to find that each year on the continent of North America the injured number between two and three million, while the number of killed amount to in the neighbourhood of fifty thousand.

It would be quite impossible for an inspector to enumerate the causes from which so many accidents happen. It might be well, however, to mention some of

the causes from which some of the accidents most frequently happen. As a result of my investigations of accidents happening within the district assigned to me during the year, I was more than surprised to find the very large percentage of accidents among foreigners; this, however, bears out my statement contained in my report of 1909, in which I stated: "It might be said also that the growth of commercial industries and the keen rivalry among manufacturers have encouraged the introduction of foreigners, who, owing to their willingness to work for less wages, are engaged with a view of lessening the cost of production. Many of these men are unable to speak the English language, and are required to operate dangerous machinery without any experience. When instructed by English-speaking foremen they are unable to understand the instructions given, and as a consequence are much liable to accidents. Accidents among this class of workmen are daily becoming more frequent, and I believe are doing much to augment the list of accidents in factories throughout this Province."

There are many accidents happen in factories for which the factory owner is to blame, while there is a great deal of the blame can be laid at the door of the employees to whom the accidents happen. The factory owner is often negligent and indifferent in the provision of proper safeguards for dangerously exposed gearings, belts, pulleys, saws, fly wheels of engines, and engine cranks, as well as failing to provide proper hand railings for stairways and hatchways, runways, and openings in floors, through which men so often accidentally fall.

It would not be fair, nor have I any desire to put the blame for all accidents on the shoulders of the employers. We have the "smart Aleck" employee, who is too conceited to be shown the danger and too foolish to be careful, and who thinks it is brave to take a chance on an accident that he does not think is going to happen. These men very often object to using guards, not because they are inconvenient, but to demonstrate their wonderful and unusual smartness. They wish to be contrary, and they sometimes think it pleases the "Boss." I have known these kind of men, and my experience has been that they are the worst "quitters," and if they lose the top of one of their fingers they want at least $1,000 from their employer, though they know beyond a doubt that the accident was entirely owing to their own carelessness.

In cases where the factory owner has provided guards for dangerous machinery such as saws, sharpers, jointers, band saws, etc., and the employees neglect to use them there seems to be a general impression existing among the manufacturers that if any accident happens they should not be held responsible for compensation. I am quite frequently asked to express my opinion in this regard, and in all cases I have advised the manufacturer to compel the men to use the guards; for in my opinion the only way an employer can be sure of not getting the worst of a damage suit in case of accident is to not have the accident, and in consequence keep away from the courts. I am well aware of the utter impossibility of utterly eliminating accidents, but in order to minimize or lessen them as much as possible it is very necessary for us not only to insist upon the use of every known safety device, but to see that every known precautionary measure is taken.

Child Labor.

A Factory Inspector's report without some reference to child labor would, to my mind, be most incomplete, owing to the fact of there being no subject of more vital importance to the community as well as the inspector, still it seems extremely difficult for me to point out any new phases of the all-important branch of my

work, owing to my having in previous reports said so much, as well as the prominence given it by other inspectors.

I do not know of any subject more deserving of attention by our department, not because of any serious violations of the law regarding the employment of children, but because of its vital importance not only to the Province but to the entire Dominion and to all who are interested in the building up of a great nation.

I want to say that within the district assigned to me there is at the present time comparatively little child labor. Whether it is as a result of vigilance on my part or not I will not attempt to say. There is, however, a marked improvement along these lines, and I can assure you there are very few, if any, children under the age of fourteen years employed, excepting in the rarest cases, where probably the parents of children have misrepresented the age to the employer, who, upon finding out the truth, generally discharges the child.

The employment of children under the required age is a subject to which I have given the very closest attention, and while I am free to admit the difficulties in connection with the enforcement of the law regarding child labor, I feel perfectly safe in saying that if there is any wilful violation of the law it is quite insignificant. It is quite true that we have occasional complaints of children being employed in factories, but the complaints are generally from people who have no chance of ascertaining the age of the children complained of other than their own observation while the child is going in or out of the factory. My experience has taught me that no matter how clever we may be, or how "cocksure" we are that we are right there is always an excellent chance of being wrong, especially in the age of a child. It has been my practice to always investigate any case where there was the slightest doubt or cause for complaint, and while I find that occasionally there are one or two who work in, generally by misrepresenting their age to the manufacturer, in many cases the complaints are entirely unfounded. If there were any children they proved to my satisfaction that they were of the required age. Where I have had any doubt of the age of a boy or girl employed within my district I have compelled the parent to make a written declaration before a magistrate when there was no other means of proof.

It is impossible for me to write upon this subject without again pointing out the difficulty I have experienced in not having some sort of authorized or standard certificate from them that when properly filled out would establish beyond a reasonable doubt the age of the child. In fact, my own personal opinion is that all manufacturers should be provided with these certificate forms, and no child should be allowed to commence work until the parents or guardians had filled one out in such a manner as to remove all reasonable doubt as to the age of applicant. These certificate forms could be kept on file and handed to the inspector upon his visit to the factory, and if any boy or girl was found in the factory for which there was no certificate there could be no doubt of the employer's wilful violation of the law.

While reporting upon this important subject I might be permitted to quote from a paragraph contained in my last year's report which I think is somewhat important: "It has always occurred to me that in making laws for the protection of children the physical condition of the child and the nature of the employment at which they are engaged should be taken into consideration." There are employments at which a child might be engaged where they would be safer at the age of ten than they would be at others at the age of sixteen. For instance, a delicate boy or girl might be perfectly safe at some light, clean, and healthy work, while they would last but a short time at heavy and dirty work to which children are sometimes subjected. Of course, in considering this phase of the question I quite realize

the great difficulty that would arise in placing the responsibility of saying whether or not the boy or girl was physically fit for certain employments.

The experience of a Factory Inspector will teach him that there are many reasons why children are sent to the factory before they become the required age. He often finds the poor man who has never been blessed with anything but more children than he is able to support, who looks upon them as assets, from which he must derive a revenue at the first opportunity. He is in very poor circumstances, and takes the first chance of sending the children to work in order to alleviate his poverty.

Sometimes parents find it almost impossible to keep a boy at school. He runs the streets and is constantly getting into trouble. In cases of this kind the parents of boys often send them to work, not because of any inclination on their part, but because they want to keep them out of trouble and off the street.

Sometimes we find a boy or girl employed in a factory who is just a month or so too young, and upon inquiring as to what their father works at we are told he is dead, and that the mother is endeavoring to support the family in which there are several children at home. I want to say there is not very much pleasure in having to tell that boy or girl that they must go home, and that they will not be permitted to assist their already over-burdened mother to support the rest of the family.

While enumerating the causes of putting children to work before they have reached the required age, we must not overlook the man who is perfectly able to keep his children at school, but cares much more for the few dollars they bring home than for the future of his family. Neither should we overlook the employer who sees a chance of increasing his profits by putting a boy on in place of a man when possible.

Sanitation and Ventilation.

Speaking generally of the sanitary conditions in factories throughout my district, I am pleased to say there has been a decided improvement within the past years. In some cases the conditions are almost perfect, thanks to thoughtfulness and care of the employer, and, indeed, I may say with no little credit to the employee, for I have long ago arrived at the conclusion that without their co-operation such conditions cannot be obtained.

The fault of having unsanitary conditions exist in factories is not by any means always the fault of the factory owner. In some cases the employer has failed to provide proper conveniences in the way of closets, washrooms, etc., but in many cases where I have often had considerable trouble inducing the employer to put in all the up-to-date plumbing the employees have failed to do their part in the way of keeping them in a sanitary condition. On the contrary, one would almost be convinced from their actions that they were going out of their way to destroy and put the place in a dirty and unsanitary condition.

I have always been desirous of bringing about the very best sanitary conditions possible. It must, of course, be borne in mind that a possibility in one town may be an utter impossibility in another, inasmuch as the larger towns are well provided with sewers and waterworks, while many of the smaller towns have neither. Ideal sanitary conditions are undoubtedly the aim of every inspector, but it is only in places where circumstances will permit that such conditions can be obtained.

I have experienced considerable difficulty in my endeavor to bring about sanitary conditions in buildings that were originally built for warerooms and are now being used for factories, and in buildings that have been built for a specific purpose and are being used for an entirely different purpose. I mean by this that if a building was erected for a saw-mill it is an extremely difficult matter to make an ideal apple evaporator out of it. Here is a special instance: A building was intended for a wareroom, it is 100 ft. long and 30 ft. wide, windows in each end being the only means of ventilation. This building is being used as a cigar factory, and the rooms are filled with men and women from one end to the other. The peculiar character of the work will not permit of any draft blowing on the tobacco, because of drying it, and thus preventing the rolling of it into cigars. If we open the windows at the end of the room those working next the window cannot stand the cold, while those in the middle of the room are suffering for want of air. Even if the air were warm it would interfere with the work to such an extent that it could not be tolerated. In this and similar cases we generally find the remedy extremely costly. The men operating the factory as a rule are not the owners of the building, and in many cases the lease has nearly expired. In consequence we often find ourselves in a quandary as to what is best to do.

The ventilation of many factories has hitherto been allowed to look after itself. It is very seldom any provision has been made by the architect, this causing endless trouble for the inspector, who is looked upon by the working classes to see that at least a fair share of fresh air is provided. Factory owners and manufacturers as well as builders have given very little attention to ventilation, and indeed what has been done has been entirely on the suggestion or insistence of the Inspector.

In our many fights for fresh air and ventilation in factories we are confronted by persistent arguments, not only on the part of the employer but also of the worker, the very person whose living condition we are endeavoring to improve. In many cases where I have deemed it advisable to order some particular system of ventilation considered to be the best and most suitable for the case under consideration—such as rooms where poisonous gases are being generated or poisonous vapors from dyes, or where the air is being contaminated by the dust from polishing wheels—I am told by the employer that he "has been running this place for twenty years and never had a man die yet." Then he will call out to one of his men, "Isn't that so, Bill?" and Bill replies, "Well, I have been working here for ten years, and it never did me any harm."

One might elaborate on this important question at great length, but as a great deal of space has been given to it by our other inspectors from time to time I will refrain from doing so. In proof of our contentions, however, that fresh air is very necessary we only need refer to the fact that fresh air is prescribed by the very best physicians as the only successful cure for tuberculosis.

Saw-mills.

In my previous reports I have devoted so much space to the subject of saw-mills that I have little or nothing left to say unless I report what has already been said. The great importance of the saw-mill industry, and the personal interest hitherto manifested in this particular branch of work by me, however, will scarcely permit of my entirely omitting the subject from this report.

At one time I dreaded going to a saw-mill. I was for some unknown reason possessed of the opinion that not only were saw-mills extremely dangerous, but that they were operated entirely regardless of law. I also had the idea that the men

engaged in the lumber business, as well as the workmen, were an uncouth and rough class. In fact, many people seem to have got the same impression, for it is but a short time ago that I got into conversation on the train with a gentleman upon the subject of "saw-mills," and in the course of his remarks he said: "The people engaged in the lumber industry are a pretty rough bunch." When I undertook to convince him that men engaged in the lumber business were no rougher than any other class of manufacturers, he either thought that I was telling him a wilful lie or that I knew very little of what I was talking about.

Owing to my district extending to the far North Country, including both the north and south shores of the Georgian Bay and New Ontario, my duties take me to the most remote parts of the Province and in contact with a great many saw-mill and lumber men, and in almost all cases I have found them the very reverse from what I had expected. During the three years I have been in the position of Factory Inspector, I feel perfectly safe in saying that in no industry have there been greater advances made in the way of taking precautionary measures for the prevention of accidents, and among no class of manufacturers have my recommendations been more cheerfully complied with.

The fact that I have been agreeably surprised in the character of the lumber and saw-mill men, and that they have shown a willing disposition to comply with my recommendations, does not for one moment remove the fact that a saw-mill is "dangerous." With all the precautionary measures and up-to-date safety devices the saw-mill is still a dangerous industry. Saw-mills are dangerous because of the usual lack of room to safely operate the machinery and the high speeded saws that in some cases cannot be safely guarded. The modern gun shot or steam feed works with such rapidity as to greatly enhance the danger to those operating them. The introduction of gang edgers or circular gang saws, the over-taxing of machinery, and the rapidity with which the men in an up-to-date saw-mill are compelled to work greatly increases the danger, notwithstanding the fact the mill owner may take every reasonable means of preventing accidents.

I have frequently found fault with the mill owners for apparent carelessness in allowing boys under the required age to work in the mill, particularly in the lath and shingle mills. I am pleased, however, that upon my last visit there was a marked improvement along these lines, and I am convinced that, speaking generally, there is no desire upon the part of the mill owners to violate the law in this regard.

Saw-mills have always been of unusual interest to me; so much so, in fact, that I have given them a great deal of study and attention, and have endeavored to put myself in a position of competency to at all times discuss and advise the mill owner in the arrangement of the machinery with a view of advantage and safety to those operating it.

If any manufacturer appreciates the advantage of thorough organization in the operation of a plant I would invite him to take a look in at an up-to-date saw-mill.

Boiler Inspection.

A very important branch of Factory Inspection and one which tends very largely towards the prevention of serious accidents is that of Steam Boiler Inspection. If the explosion of a steam boiler involved only the loss of a boiler it would be of no special significance. Unfortunately, however, it in nearly all cases involves the lives of many men and women, as well as the buildings occupied and adjoining buildings. There have been two boiler explosions in the district assigned to

me within the last year, though neither of them came within my jurisdiction owing to their being of less capacity than 50 horse-power, and not employing the required number of hands. One of these explosions I investigated, and found that the boiler had not been tested for several years. The attendants claimed that only 60 lbs. pressure was being carried at the time of the explosion, but judging from the distance, the steam dome, and several large pieces of the boiler plate were blown I am confident a much higher pressure was being carried, probably owing to a defective steam gauge and safety valve. Fortunately no person was injured.

In many of the larger factories the boilers are insured against explosion, and examined by the company's inspector several times per year, as well as being in charge of competent engineers, and as a result are comparatively safe. In several of the smaller mills and factories, however, I am sorry to say those measures are not taken, and too often the boilers are in the hands of incompetent men.

The safety of any boiler almost entirely depends upon the man in charge of it. If the engineer is a competent man he will see that the safety valve is tested every day, the try cocks are tested regularly, the gauge glass is blown out every hour, the stay bolts examined regularly, and the boiler tested at least one-third higher pressure than the pressure expected to carry. In many cases I regret to say these precautionary measures are not taken, and too often the plants are in the hands of incompetent men. To those who understand the situation it is a great wonder that more explosions do not happen. I have endeavored with considerable difficulty to enforce the law regarding the inspection of boilers. I have, in nearly all cases where the boiler is not insured, succeeded in getting a certificate of inspection from a qualified engineer, as required by law. I, however, do not contend for one moment that the boiler is absolutely safe as a result.

The inspection of boilers is undoubtedly of the utmost importance in the prevention of explosions. I realize, however, that it is equally as important to have a competent engineer in charge.

Canning Factories.

Again, I must refrain from speaking in a special way of the canning factories, owing to there being so few within my district. I should, I suppose, state the facts as I have found them among the few with which I have come in contact. I may say I have little or nothing to add to what I have stated in my former reports; but, as there seems to have been an idea spread broadcast throughout the Province to the effect that canning factories are unduly dirty, and not generally kept in conformity with the law, I feel that in fairness to the canners in the district assigned to me I should refute any such idea, for in so far as my district is concerned the report is entirely without foundation.

Upon my first visit to the canning factories I must admit I did not find things in altogether "apple-pie order," but as a result of some reasonable and judicious advice I am pleased to report the conditions much changed, and I am firmly of the opinion that the canners with whom I have come in contact are quite willing, and in fact anxious, to comply with any reasonable recommendation I may see necessary to make.

The help proposition seems to be as troublesome a question as ever among the canners. The chief cause of this difficulty, of course, is the temporary character of the work, the seasons being short as well as the many idle intervals during the season caused by having to wait for the ripening or maturing of fruit or vegetables. For these reasons it would appear that only

the surplus help on the market is procurable, and as that surplus within the last two or three years has been so very small the canners have been up against a rather troublesome proposition. In many cases the help has been brought in from the outside and housed by the factory owners. This I may say is a feature that does not seem to have been worked out with much satisfaction from an Inspector's standpoint. The keeping of these houses clean seems to be the work of everybody; and as usual what is everybody's work is nobody's work and is not usually very well done. In consequence the houses are not kept in a satisfactory condition.

In my former experience with canners I found a strong tendency to engage children under the required age. This last season, however, I am pleased to report I have had very little trouble in that regard.

Foundries.

I have never yet closed my annual report without calling attention to the great necessity of baths provided with hot and cold water, and lockers for clothing in foundries. This subject appeals to me every time I enter a foundry, particularly in cold weather. How moulders are so healthy and escape serious lung troubles has always been a mystery to me.

The conditions under which moulders are compelled to work subject them to extreme heat as well as very often extreme cold; the strenuous nature of the work during the time of casting, the accumulation of gases caused by the melted iron being poured into the sand moulds, and the high temperature cause the perspiration to flow freely; these dangerous and uncomfortable conditions are usually brought about just before quitting time, and in this heated condition the moulders leave the shop and go out into the cold.

My proposition of baths would be to enable the moulder to take a bath and put on dry clothing before going out into the cold, thus precluding to a great extent the dangers of colds and their accompanying results.

I have received complaints of the use of salamanders without smoke pipes, and also open core ovens. The drying of ladles in foundries is also offensive, all of which tends to generate obnoxious gases, in which the moulder is compelled to work. I may say that I have been giving close attention to these objectionable features, and can assure you of their utter elimination within a reasonable time.

Fire Escapes.

To have two distinctly different stairway exits (one at each end where possible) from each room where people are employed in factories is a rule I have adopted, and one I have endeavored with no little difficulty to carry out. The dangers of serious accidents arising from congestion or panic in case of fire have been greatly augmented by the occupation of the top stories of high buildings for manufacturing purposes.

In order to provide the two necessary exits it is often necessary to erect outside iron fire-escapes, a proposition which I can assure you does not always meet with the hasty approval of the factory owner. Some few years ago the erection of a fire-escape was the cause of many arguments, and much dickering between the factory owner and the Inspector; and in many cases the fire-escape erected was unsafe and utterly useless as exits in case of fire. As a result of these conditions an Order-in-Council has been passed specifying how fire-escapes must be built,

the size of the balconies, the weight and size of material, the height of hand railings, the angle of stairways, the size of tread, the size of bolts, rivets and corner plates. These specifications have greatly facilitated our work, and have enabled us to have fire-escapes erected that are practicable, useful, and absolutely safe to carry all the people that can get on them in the most extreme cases of danger. As a consequence I am pleased to report a decided improvement in fire-escapes.

Apple Evaporators.

Though there is very little about an evaporator upon which to base a report, it is very important that the facts in connection with them should be reported.

The season in which evaporators run is so short,, and the keeping up with the work is so urgent, that very little can be done at the time of inspection other than seeing that the premises are kept in a clean condition. Clean towels, wash basins, soap, and a good supply of clean water are provided, together with proper conveniences for men and women. Beyond this any considerable change in the plant must be left over until the close of the season, owing to the impossibility of stopping the work to make alterations and have the stock rot and go to loss as a result.

The closing remarks in my report of 1909 read as follows: "If it were not for the few good ones, I would like to say more, but I will for the present refrain from saying more than that the evaporators must improve in 1910." Upon my first visit to the evaporator in my district I cannot say that there was one place that was entirely satisfactory. My first visit, as I reported it last year, was productive of much good, though there was ample room for improvement. Upon my visit this season I found still greater results of my previous visit, and want to say that if next season will show the improvement that I expect the evaporators will have reached a reasonable standard, and will compare favorably with any other class of manufacturing establishments.

I must refrain, of course, from mentioning the names of those to whom great credit is due for the improvements they have made. I may say, however, that if any person wishes to see a real up-to-date and well kept evaporator I can direct them to several in my district.

Polishing Rooms.

We have some little trouble in polishing rooms as a result of an apparent desire on the part of the factory owner to install any exhaust system but the right one. There seems to be a most pronounced desire on the part of many men to show us how much they know about something that they do not know anything about, and never had a day's experience with in their lives. I invariably point out to the manufacturer where I think it necessary to recommend an exhaust system the fact that I have no wish to dictate to him as to the system he installs so long as it does the work; but if he wishes I will show him how I think the work ought to be done, and often refer him to some factory in the vicinity where a similar system is used. I take the trouble of showing him the advantages of having the trunk pipe below and as rear to the lathes as possible, and having it reduce in size as it goes away from the fan and of leaving as short branch pipes as possible always curving towards the fan.

When I come around to see the plant in operation, I may find a trunk pipe 40 or 50 feet long the same size all the way through run along the ceiling at least

10 feet above the lathes or stones, with as many square elbows as possible. The factory owner when he undertakes to operate such a system finds that the fan he has is not nearly large enough to do the work on account of the way the pipes are made and installed. Then he gets a fan large enough to do the work with such a system, and finds out he has not sufficient power to run it. This necessitates going back to the system we recommended in the first place, or putting in a large motor to drive a system that never will work with any degree of satisfaction.

The hoods also seem to have their charms for the would-be inventor, or the man who likes his own ideas best, and as a result we seldom, if ever, find two polishing rooms with the same kind of hoods.

We sometimes have trouble with the contrary or smart man who wants to work his wheel without the hood—one of these "There is no danger" chaps—and instead of some one complaining to the foreman and compelling him to use it, a complaint is sent to the Inspector, who is compelled to visit the factory and insist upon "Mr. Smart Man" using the hood.

There are polishing rooms where the exhaust system works perfectly, and if people installing a system would visit those places and put in similar systems it would save them a great deal of expense and the Inspector a great deal of trouble.

Stationary Engineers.

Reporting upon the enforcement of the Stationary Engineer law, I may say that while we occasionally experience some slight friction the law, for a new one, is well observed. Like all other new propositions it requires some patience and judgment in the working out of details in the commencement. I have no doubt that with careful enforcement it will within the near future work out to the desired end of raising the standard of stationary engineers throughout the Province.

Robert Hungerford.

REPORT OF INSPECTOR THOMAS KEILTY.

Sir,—I have the honor to submit a report of the Inspection of Factories and Shops in the district assigned to me for the year 1910.

The different conditions relating to factory inspection have been so thoroughly covered in past reports that it would be difficult to touch upon any phase of industrial life which has not been discussed to a greater or lesser degree.

It may be admitted, however, that the product of labor, whether common, mechanical, or scientific, is the basis of every commodity. Admitting this, we may readily understand the ever changing conditions consequent upon the demands of supply, and the development of science makes it possible each year for the Inspector of Factories to add something to discussions which have been apparently exhausted.

The above features are especially prominent in a growing country or province, and it may be truthfully said that Ontario bears this distinction.

Industrial activity of a marked degree began before the dawn of 1910, and continued to grow and develop throughout the entire year, and the outlook for the new year in this direction bids fair to outrival that of the year just closed.

It is true, the laws of this Province do not provide for the gathering of industrial statistics by the factory inspectors. Therefore, it may be said that the

above general statement might vary in the case of some lines of industry. While admitting that perhaps some industries, and some small localities (like some people) are immovable, yet, I feel justified in making the above statement as correct, taken from general observations and discussions with manufacturers in the course of my official visits during the year. As before stated, it is therefore possible to present something relating to general conditions as we have found them during the year.

A glance at the reports of the inspectors of factories, as published during the past, will fairly indicate the correctness of their observations, as well as the similarity of their views relating to the work with which they are identified. This is the more significant, as each inspector writes his report on the basis of his individual views and experiences, having no knowledge of what his colleague is going to write or the views he may entertain regarding his experience.

There is, however, a feature in connection with writing a report which is difficult to present in a manner that would be fair and just to the persons directly concerned in these reports. I refer to the general statement which is generally attached to the introduction, and which may be considered almost stereotyped, regarding improvements. It would be unfair and unjust to the manufacturer who had made improvements, built, or remodelled his factory in accordance with the safest, most sanitary and modern conditions, to say that "progress had not been made during the year." The same might be said of a city, town or municipality.

On the other hand it would be just as far from the facts to say that the individual or municipality which had made no attempt to conform with modern conditions was entitled to the general statement, "that good progress had been made." Yet such are the very conditions which exist, although it is but just to say that the latter class of persons and places are in the small minority.

In this competitive age, it is common—in fact, it is the general rule—for each individual and place to strive for supremacy; and when a general statement is made, any features of advantage are absorbed by the persons of every locality, whether they are entitled to such credit or not.

Inspectors making the general statement that factory conditions are very good, or have shown a marked improvement during the year, do so with the earnest desire to present fairly and justly an acknowledgment of the progress which has been made in general by enterprising individuals, and thereby express their appreciation of the co-operation extended in the observance of our Factories and Shops regulations.

But to separate the above class from the class who are not entitled to this credit (but who just as surely exist), and who in some cases display a desire to ignore, and to a certain extent defy, legal regulations which are brought to their notice by the inspector, would require more space and effort than would be practical in an ordinary report.

I have referred to this feature for different reasons, but in particular to combat opinions that prevail in some quarters to the effect that, on the basis of the inspectors' own reports, "conditions are all that might reasonably be desired." I might add that if the persons who entertain these opinions were to read beyond the first page of these reports, they would possibly be further enlightened in regard to their own standing in the progress of industry and modern conditions.

I have already said in effect that detailed reports of individual conditions would not be practical. I might add, "except in extreme cases or in explanation of new or unusual conditions." This view is based on the fact that comparatively few people read the inspectors' reports, even those whose interests are

directly connected with them. And where they are read it is generally to gather what the inspector has said about the locality in which the reader is located, or, in other words, to note if the inspector for that district has said anything that would affect their particular individual interests. They do not even take the time to read or learn the views of any of the other inspectors on perhaps the very same subject or condition.

It may seem difficult to reconcile this indifference with what may be considered a question affecting both public and personal interests; but it is so well established, that even the press does not go very far in discussing these reports; and even in such cases sensational features (if any) seem to be most important.

Call it custom, selfishness, or a sentiment lacking in public interest, if you will; while it exists, the inspectors' reports may be considered in the light of a legal requirement or reference record rather than a part of the public service maintained in the interests of the whole people.

Special Features.

Each year brings before us some special feature, not necessarily new or original; but its particular, or perhaps obscured dangers are revealed in the form of a catastrophe, involving loss of life or destruction of property. Such lessons are valuable in awakening us to a clearer sense of duty and responsibility, and in providing such a maximum degree of safety as would be beyond any question of doubt.

During the year just closed, the collapse of the foundation of a water tank in a neighboring Province, dealing death and destruction, has put before us, in a vivid manner, the need for determining the safety of such structures wherever they exist.

The year has also been eventful in the number of accidents which have happened on elevators. Our Acts provide for two methods for protecting the openings to elevators, viz., hatch doors or automatic closing gates. Some persons assume that if they have provided the hatch doors they have fully observed the requirements of the law, and often consider these hatch doors an excellent passage to some other part of the factory. We have evidence that this is a dangerous practice.

It is said that a cause for increased accidents on elevators is the increased speed and use of elevators as a part of the commercial and manufacturing equipment. So much is this in evidence that elevators which, in many cases, have done the work required of them, have been increased in speed to double their former capacity. Where elevators are re-constructed in the manner described all features in relation to their safety should be carefully provided.

Having in mind that a Judicial Committee is at work revising the Statutes of this Province, I will not refer at length to the many features of our Factory and Shops regulations, which do not harmonize or fail to meet the requirements and safety of our present day industrial conditions, in the hope that the Revising Committee will, in their wisdom, suggest to the Lieutenant-Governor-in-Council or the Legislature such changes or amendments to these regulations as will bring about the desired features of safety and conformity suggested by actual experience.

It may be well, however, to refer to a condition which has come to my notice, and which might be considered of an inter-Provincial character. I refer to the sale of bread in the city of Ottawa, Ontario, and which is manufactured in Hull, Province of Quebec.

I do not refer to this question in the light of any reflection on the persons who manufacture bread in Quebec and sell it in Ontario, nor yet with any reflection on the regulations or nature of inspections in Quebec or any other Province; but to point out that, having statutory regulations which have to be observed by manufacturers of bread and food products in this Province, it would seem that in the public interest such food products manufactured outside of the Province should have some guarantee that they are made in conformity with regulations exacted of local manufacturers.

I might also cite other features which may be regarded of an inter-Provincial nature, notably the employment of labor, especially youths and females, as well as the farming out of certain materials of clothing to be made up by persons in their homes living outside of this Province.

Child Labor.

The employment of children or young persons in factories or shops has not come to my notice in any degree that would warrant me in saying, or even thinking, that it is a growing condition; but to say that it does not exist would be also untrue. While I do not think that the employment of children under age, to any considerable extent, may be considered a general condition, yet, by the connivance of parents and the indifference of some manufacturers or employers of labor, children under age are in some cases employed. Of course, we send them home. As factory inspectors, there our duty ends. But what has been accomplished for the child? We turn them out of the factory with the intention and purpose that they will have an opportunity to develop physically and free from danger, and more particularly, that they will have an opportunity to receive at least a common school training at the time when their mind and body are in a most receptive mood for such training. Finding that they have been caught, and would not be allowed to work in the factory, it might reasonably be assumed that their parents would then send them to school.

I regret to say, that in many cases, with such parents, the children are permitted to become prematurely self-reliant. Self-reliance, with a corresponding sense of responsibility, is valuable with the child or the parent, but without that responsibility it is disastrous, even with nations.

This self-reliance and disregard for parental authority on the part of the child cause parents in many cases to permit their children to grow up according to their own ideas of what is required of them, and what is absolutely essential to an honorable career of good citizenship.

The parents of such children will tell you, "The Inspectors will not allow them to work in the mill, and they will not go to school, and what more can I do."

I have no doubt that hundreds of such cases exist in this Province. In fact, I was told by a gentleman, whose veracity I would not question, that in a town of about 7,000 population he could point out between eighty and one hundred children who did not go to school, and would not go to school, although they were of school age, and that their parents had tried in some cases to get them into the factories, (although under age), in order to keep them off the street. I asked him if there were no truant officer in the town. He said he did not know, and upon inquiring of several persons, who should know, I was unable to learn anything further of such an official.

The above does not apply to the pathetic cases which the Inspectors encounter occasionally, such as orphans who are striving to assist in the support of a widowed mother.

It is therefore evident that the social and moral progress of the children require more than physical protection, and as stated in a former report, "An educational test, before admitting the child to work in a factory, has the double advantage of requiring such child to attend school in order to prepare for the educational test before being admitted to the factory."

Overtime Permits.

There has been an increase in the demand for overtime permits in my district this year, as compared with last year. This may be chiefly attributed to two main causes. In some cases the cause is due to increased and unexpected rush orders, but the prime cause may be attributed to a better observance of the law in regard to applications for permits where they were actually required. I have made a special effort to have this regulation observed, and am pleased to say that in most cases have received the co-operation of employers in observing the law when it was brought to their notice. But I may add that some of the refractory ones did not hesitate to say that "it was a strange thing that they had to apply to the inspector if they should require to work their females overtime;" and, in fact, said that they would consider the matter, if they should require any permission. I advised them that it would be in their interest to observe the law in this and every other respect.

Guarding Machinery.

Each year shows a more marked and evident desire on the part of manufacturers to have all dangerous parts of their mills and machinery guarded, to which may be added that in some cases manufacturers of machinery are supplying standard guards for the machines which they manufacture and offer for sale, but, as stated in previous reports, "It would be a decided advantage, and very much simplify the guarding of standard machinery, if the makers of such machines were required to provide them with standard guards before being offered for sale."

Sanitation and ventilation have made progress in my district during the year, and in the case of new factories these regulations as well as that of fire protection are invariably observed. It may be said, however, that some of the proprietors of bake-shops in the city of Ottawa seem to require a constant reminding to keep their premises in any sort of a reasonable condition consistent with the important work of manufacturing food products, and the requirements of the Act, in that regard.

I took up this work of inspecting bake-shops as a special one early in the year, with very good results and promises; but on my next visit, some months later, I found that many of the bakers had apparently forgotten their good resolutions, and had fallen back to their old methods. I gave them warning, and if this does not bring permanent results, I shall feel it my duty to teach them in a manner that may be more impressive.

I cannot understand why it is that persons engaged in the manufacture of food products do not realize that the sanitary condition of the surroundings, and the cleanliness under which such food products are made and handled, are the best advertisements or recommendations such bake-shops could possibly have.

Ventilation, heating, and the removal of dust and gas are receiving my attention with good results, and I may add that the down draft system recommended in my last year's report for the removal of dust, gases, etc., has proved successful in such a degree as to fully confirm my former recommendations for this system.

Laundries.

It may be said that conditions in laundries have remained about as usual, with the exception that recently an extractor guard has been put on the market, which is simple in its construction and application to extractors now in use, and should supply a want in this regard which has hitherto been found difficult to meet in a general way.

Another feature in connection with several laundries in my district, which have come into existence recently, is the cleaning of clothes and other fabrics by means of gasoline, benzine, and other liquids, which are of an explosive or combustible nature. Of course, this means the storage and use of such materials on the premises, or adjacent thereto, as may be required in proportion to the extent of the work. The Act provides for the storage of such materials as are not in actual use. But, in a case which I have in mind, the quantity of this material which is in actual use, say thirty to fifty gallons, makes its use absolutely dangerous in a factory where a large number of persons are employed, and in my opinion the law should be amended so as to provide for the safety of persons in the proximity of such work, by requiring that any process wherein such materials above a certain safe quantity are used, should be kept separated at a safe distance from workrooms in factory buildings, and surrounded with such safeguards as the nature of the work will permit.

Fire Escapes and Fire Protection.

The question of fire-escapes has received my earnest attention during the year, with the result that several new fire-escapes have been erected in accordance with the provisions of the Factories Act and specifications pertaining thereto. In regard to this requirement, the city of Ottawa through their City Council passed a by-law regulating the safety and construction of buildings within this last year, and have incorporated therein a schedule of specification exactly in conformity with that of the Ontario Factories Act, which makes the work of the city building Inspector and that of the Factory Inspector co-operate on this question in the city of Ottawa.

General Features.

I have followed the various features pertaining to our factory and shops regulations in the district assigned to me, and can earnestly say, that each year produces a better understanding, and a better observance of these laws, and I may add that much is done in this direction which could not be practically detailed in a report of this nature.

Thomas Keilty.

REPORT OF INSPECTOR FRED. KELLOND.

Sir,—I have the honor to submit a report of the Inspection of Factories in the district assigned to me during the year just closed.

The year 1910 has been of unusual activity in all branches of the industrial world. I found every factory in my district practically working to capacity during the whole year, and invariably the statement of each manufacturer was that he was behind with his orders. In many localities help was scarce, the scarcity being most

severely felt by employers of female help. In some of the smaller towns the industries have outgrown the town, and the effect has been the establishment of branch factories in the neighboring villages. Another effect of this condition is the attempt to increase the output by working overtime; but I have yet to meet the individual, either employer or employee, who really believes that the actual output for any length of time can be increased by overtime work. With increased prosperity have come new industries, new factories, and new conditions. The average new factory building is now built with a view of giving the worker the best conditions possible, and the wise manufacturer is the one who realizes the fact that the nearer he has his plant to the ideal the greater his production at a given expenditure, or in other words, it pays.

Ventilation.

Taking into consideration the advancement that has been made in the erection and outfitting of factories in the last few years, I do not think that architects give enough thought to the question of ventilation, in many buildings no provision being made save windows. A number of plants are now heated by means of warm air being forced into the different rooms, and the claim is made that this being pure air it must be a good thing, and by being forced into the room the air is changed every few minutes. This is all right, but in many cases no provision is made to let out or take out the impure air. I concur fully in the opinion of one of our Inspectors, who, when reporting on ventilation in his report for 1909, advocated a down draft system of ventilation, *i.e.*, take the foul air off the floor by means of an exhaust fan, and the effect will be a supply of pure air flowing from ceiling past the operators to the floor.

Sanitation.

In city factories and shops this should be an easy proposition by reason of the ample supply of water and good sewerage, but a more united effort on the part of employer and employee would improve conditions in many instances; for it is a lamentable fact that in many cases where the employer has installed a good sanitary system some employee, who considers vandalism smartness—and there appear to be many such—will proceed to abuse and destroy the property. Then the inspector comes and objects to conditions and the employer says: "I have provided the best I could for these people, and if they are not interested enough to take care of it it is not my fault." He has undoubtedly some reason to be disgusted, but why should his many employees suffer for the faults of a few.

By the appointment of some person whose business it would be to look after these places, and the prompt dismissal of the vandals when discovered, all trouble might be averted. There are plants where men are kept whose whole duty it is to keep the factory clean; here the sanitary features are all that could be desired. Another difficulty met in this connection is in plants where a large amount of foreign labor is employed. This class of help is most difficult to provide for, as for the most part they appear to be void of all appreciation of improvement made on their behalf. I know of one plant which provided the best form of modern conveniences, and their foreign employees refused to use them preferring the most crude arrangements. In localities where there are no sewers the problem is more complex, as the difficulty is to have what is provided kept clean. The manager tells the Inspector, "Oh, we pay the town money every month to keep these places clean; if it is not right see the town." Unfortunately the town Board of Health is very seldom on the job.

Child Labour.

I reported last year that I did not know of a child being employed in my district. I can only repeat the statement now, but I must say that I have found several during the year, and I am satisfied that it is only by the most persistent and careful inspection that child labor can be kept out of our factories. I think that I am safe in saying that all our manufacturers are opposed to child labor; but there are many ways in which children become employed through carelessness of the truth on the part of parents and guardians, and carelessness of inquiry on the part of the superintendent. Another factor in child labor is a rather false idea of philanthropy. Not long ago I went into a factory and found a small boy between thirteen and fourteen years of age employed in the shipping room. I informed the superintendent that the boy could not be so employed and requested that he be sent home at once, which was done. When the manager who had been away came back next day and found the boy had been discharged he was very indignant, and wrote a letter protesting against my action, giving the reason that the boy was earning needed money. Now this manager is a most estimable gentleman, for whom I have every respect, and I have no doubt he was sincere in his protest against what he considered unjustifiable interference on the part of the Inspector; but if we wish to stop child labor we must stop it everywhere, and while there is no doubt hardship caused in some cases, I do not see how there can be any discrimination. I had some trouble with one of our canning factories which I found employing children under twelve years of age, and also employing children at night. The old story of the child being better with its parent in the factory than on the street, and the exigencies of trade, were the excuses given, but I could see no reason to allow children under twelve years to work. It was suggested to me in this case that Inspectors should be allowed some latitude in cases of this kind. I might say right here that I do not agree with this at all. Not for one moment would I consider such a suggestion. I am strongly opposed to any more discretionary powers being handed out to Inspectors. What is the use of making a law, and then giving some person the privilege of breaking it? If some inexpensive method of securing a legal birth certificate were provided, it would be an improvement on present conditions.

Fire-Escapes.

I have had a number of fire-escapes erected during the past year, and since the adoption of standard specifications the class of fire-escapes has been improved very much. While I have tried to have all factories provided with what I consider good and sufficient exits, I feel that in many cases the deplorable catastrophies that we hear of from time to time are to be attributed more to panic than to lack of means of escape. I think that a systematic scheme of fire-drill properly worked out to fit the peculiar features of each plant would be of more real benefit than anything else in case of fire. There should be a system of low ringing fire-alarms in each flat or department, exits so distributed that there would be no overcrowding, and a man or woman to take complete charge of room in case of emergency. Every employee should know just what exit to take, and be so instructed that he or she would take it without hesitation. There should be a clear understanding of who was to open the fire doors and man the fire buckets and fire extinguishers; while certain persons should inspect closets to see none were left behind. The person in charge of a room should have with him at all times a com-

plete list of persons in the room, so that a roll call could be had at once to detect missing ones, and a duplicate list should be kept in the office. There should be a drill somewhat on these lines say once a month. Along with this drill should be a frequent cleaning up of the premises, and all rubbish should be removed. I am fully aware that to ask for such a system as this to be worked out in detail and practised monthly is asking for something that costs money. The difficulty is in keeping it up. A new management comes in and the drill is stopped. The chances of fire, like the probability of death, are always remote in the average mind, and to keep on going through the fire drill year after year is likely to strike people as foolish. But, as intimated, the freedom from rubbish and the care of inflammable material should be part of the scheme, and the employer who conscientiously protects his employees has compensation in the protection of his property.

Safeguards on Machines.

This phase of factory inspection has had my closest attention. I have succeeded in having a large number of guards put on various machines, and I think I have grounds for saying that by persistent work in this line a more general use is being made of the guards. I have been able to show the employer that it is a good investment to provide the guard, and the employee that when the guard is provided the best thing he can do is to use it at all times. In previous reports I have urged that the manufacturer of machine tools should be compelled to guard all dangerous parts of machines, and also to supply movable or adjustable guards when necessary. In this connection I might mention an incident that came under my notice. I was walking through a large agricultural implement plant which does a large export trade, and noticed a number of binders being packed for shipment, some of which appeared to be covered in and others not. I asked the reason of the difference, and was informed that binders intended for the German market had to be supplied with a hood, which when down completely covered the working parts of the machine. When the hood was raised it threw the driving wheels out of gear in such a way that the machine could not be operated with the hood up. The machine for the home market was not supplied with this hood, as the law did not call for this safeguard. I thought how much better the German law was in this respect than ours. The International Harvester Company have adopted a plan whereby they will not accept for use in any of their factories any machines that have any exposed gears or dangerous parts, and in carrying out this plan there is attached to and stamped on each order for machinery for use in any of their factories the following condition: "This machine ordered with the understanding that all dangerous exposed parts, especially gears, are properly shielded," all of which goes to strengthen my contention that the place to guard machines is at the place of manufacture.

First Aid to Injured.

Closely connected with the question of the guarding of machinery is the question of the care of the injured. All factories of any size are now fitted with first aid appliances more or less elaborate, from the simple first aid cabinet to the fully equipped hospital room in charge of a qualified nurse, as is the case in many of the best plants. The International Harvester Co. has gone still further, and have instituted what is called the "Industrial Accident Department," the purpose of which is to insure to their employees definite and adequate compensation. Briefly, the scheme is this: Without any contribution from the employee the company will

pay in case of death three years average wage; in case of injury, one fourth of wages during first thirty days disability, and if beyond thirty days one-half wages during continuance of disability, with special benefits in case of loss of hand, foot, or eye. There is also provision made for increased compensation when employees make a nominal contribution to funds. In connection with this department, with a view of reducing accidents to a minimum, they have an inspector in each plant whose duty is to see that danger spots are safeguarded as much as possible.

Elevators.

The elevator is a source of danger in a factory, and unless great care is taken accidents frequently occur and are usually of a very serious nature. I have endeavoured to have all openings to shafts protected by gates or hatches, but further than this all elevators should be in care of a reliable man whose sole duty should be to run the elevator. I do not think the average youth in a factory or store a fit or proper person to have charge of an elevator, either freight or passenger.

Moulding Shops.

I am pleased to report that I have been able to get a few firms to install wash rooms in connection with moulding shops, and have good hopes that we soon will be able to have such places in all shops of any size.

Polishing Rooms.

I have had the usual experience with polishing rooms. Practically all of them are fitted up with exhaust fan systems, but the majority of them have been put in by people without any real knowledge of the requirements. The installation of a successful exhaust system is a job for an expert. Then after it is in and working the hearty co-operation of employer and employee is necessary to keep it in good shape—the operator to take ordinary good care of the hoods and piping, and the employer to see that it is somebody's business to keep pipes clean and the fan from being clogged. Another cause for complaint frequently arises from too much work being put on the fan. The number of frames is increased with the increase of the business, but the same old fan and pipes are expected to do the work. I have at the present time several cases in which I have been able to show the managers that the existing pipes and fan were inadequate, and the result is that entirely new systems are about to be installed.

Canning Factories and Evaporators.

I am glad to be able to report that conditions on the whole are good. Only in two canning factories did I find any cause for complaint, and these cases were not at all serious. In evaporators the report is not so good, although there was improvement and in some cases all that could be asked for. The apple crop in some localities was very short, and served as an excuse for not spending money. The efforts I put forth last season have borne some fruit, and I am satisfied that next season will see a decided improvement all along the line.

Stationary Engineers' Certificates.

During the past year I have paid careful attention to the provisions of Secs. 5 and 7 of the Stationary Engineers Act, and can report that I have found the

same well observed. I do not know of any steam plant of 50 h.p. or over that is not in charge of an engineer holding a certificate, or, in lieu of that, has not applied for examination for the same.

In conclusion, I am pleased to say that my relations with the managers of the various industries in my district have been most cordial, and while they do not always agree with me I have been treated with the utmost courtesy, my recommendations cheerfully received and for the most part promptly attended to.

FRED. KELLOND.

REPORT OF INSPECTOR S. J. MALLION.

SIR,—I have the honor to submit a report of inspection of factories and shops in the district assigned to me for the year ending December 31st, 1910.

The year which has just drawn to a close is one that will be long remembered with pleasure by the manufacturers, as it has been about the most prosperous and successful year they have had during their business career. Many of the manufacturers were unable to fill their orders, so great was the demand. This was particularly noticeable in the furniture lines. In order to meet this demand overtime was resorted to, and in some cases good substantial additions to factories were erected. During the year several new factories have been built, and all seem to be getting their share of the increased business, and are enjoying the general prosperity of the country. Several very disastrous fires occurred among our manufacturing industries during the year from various causes. These fires invariably happened during the night, and clearly demonstrate the necessity of being careful in the disposal of refuse and the storing of all inflammable material.

CHILD LABOUR.

I am pleased to report that the manufacturers in general have been careful in carrying out the conditions of the Act regarding the employment of children under fourteen years of age, and as a result very few complaints have been received from my district regarding child labor. Most of our manufacturers realize the fact that boys and girls under fourteen years of age are not a financial success. They are of too tender an age to understand the responsibilities of factory work, are apt to get fooling around the machinery, and serious results follow. While on this subject I would strongly point out the necessity of manufacturers and their assistants prohibiting children from going in and out of their factories at any time. Several times during my inspections I have noticed small children loitering or fooling around the factory. In some cases the boy would be the son of the proprietor or manager, and in some others a child of one of the workmen, or perhaps a neighbor's child.

A sad instance of this practice happened the other day at a flour mill in Breslau, with fatal results. It appears a little boy about eleven or twelve years of age, a son of a prominent resident of that village, was playing around the top floor of the mill, and while there he noticed a pulley running with the belt off, and, with boyish curiosity, he thought he would see if he could put it on. In his attempt to put the belt on he was suddenly drawn into the rapidly revolving machinery, and whirled to death almost instantly. This sad and unexpected end-

ing to a bright young life should cause all interested in the manufacture of any commodity to see that a similar occurrence does not take place in or around their plant.

Overtime Permits.

Owing to the commercial prosperity which our manufacturers have been enjoying, many of those employing female labor could not keep up with their orders. In fairness to those manufacturers I may say that they endeavored to increase their staff of employees in order to take care of the increased business, but owing to the great demand everywhere for female help it was almost impossible to secure the additional labor required. Consequently overtime permits were applied for through our department. These applications were individually dealt with, and if the conditions warranted the issuing of a permit it was granted, if not it was withheld.

Guarding Machinery.

The guarding of all dangerous parts of machinery has received my careful attention; but, notwithstanding the care and attention that has been given, and the many guards that have been provided, several serious accidents have happened. Some of these accidents have been the result of carelessness, and some from having operated the machine without the guard, while others were from causes over which we have no control. The buzz planer seems to be the most dangerous machine, judging from the numerous serious accidents which have happened on it. Too much caution cannot be taken in the guarding and operating of this machine. In this connection I might mention that an undercut buzz planer has been placed on the market by the Canada Machinery Corporation, Ltd., of Preston (formerly J. Ballantine & Co.), and another one by the Jackson Cochrane & Co., of Berlin. These machines are excellent workers, and give good results in quality and quantity of work. A number of the manufacturers in the district are using these machines and speak highly of them. The particular feature of these undercut planers which interests an inspector is the almost absolute safety of the operator. I have watched a workman operating these machines, and it is impossible for him to get his fingers into the knife, unless he deliberately inserts his hand under the guard. I believe I am speaking the truth when I say that not one accident has happened on these machines since they were placed on the Canadian market. I would strongly recommend these undercut planers to all woodworking manufacturers, and I believe that if they were installed we would eliminate the weekly toll of accidents which occur on the ordinary buzz planer.

Bake-shops.

I am pleased to report that all the bake-shops in the district are in a very good condition. More care is being taken from time to time. The bakers realize that the public in general, and our Department in particular, require a shop to be kept in a first-class sanitary condition. Some of the old shops have been remodelled, while a few new ones have been erected, and I can assure the public that they are getting their bread under good healthy conditions.

Fire-escapes.

I am pleased to note in this connection that the Department has adopted standard fire-escape specifications. These specifications have been forwarded to all manufacturers of fire escapes, and where a fire-escape is ordered on a building, a

copy is also sent to the owner or party interested in the erection of the same. In this way we are securing a good strong substantial exit in case of fire. At the same time the old complaint that some manufacturers were building inferior fire-escapes has been eliminated, as all must build strictly in accordance with our specifications; no deviations whatsoever will be tolerated. Since the adoption of these specifications I have rejected two fire-escapes during the year, one had been erected and the other had only been assembled. This, of course, means extra cost to the builder or the purchaser, according to their contract, and in consequence I would advise all parties concerned to carry out our specifications explicitly, as the lives of the employees of factories must be protected in case of fire, and this cannot be done except by providing firmly built fire-escapes with easy access to them.

Evaporators.

The work in connection with this class of industries has been comparatively light this year. Owing to the failure of the apple crop, many of the plants did not operate at all, while a few had a very short season. Those that were in operation kept their plants in fair condition, but there is still room for improvement.

General Conditions of Factories.

I am pleased to report that the general conditions of the factories in my district have greatly improved. Manufacturers have learned from practical experience that the modern shop of to-day with all its advantages in manufacturing facilities and sanitary conditions is the one that should be adopted. Many of our manufacturers are enlarging and remodelling their shops, thus giving more working space, light and ventilation to their employees. They are also installing the best machinery available, thereby enabling them to compete with the trade in general, and uphold their reputation as manufacturers of high grade goods. The manufacturer of twenty years ago is not the manufacturer of to-day. He must grow with the trade and keep well posted up on all the up-to-date methods of his particular branch of business if he wishes to be in the front ranks. The man who continues to operate his plant along the same old lines of twenty years ago usually finds himself in the rear of competition. His machinery and mode of handling the work are obsolete. He is always struggling for an existence, trade is generally bad, and when an Inspector enters his works and finds that some of his machinery needs guarding badly, or some other improvement is necessary, he will plead poverty and tell you he cannot afford it. When you enter the factory of a progressive business man it does not take long to become aware of the fact. Everybody is on the move, the floors are always in a cleanly condition, machinery in good working order, and the employees at their respective stations. In fact, an air of prosperity and activity seems to prevail all over the shop. The heating, lighting and ventilating systems are excellent, as the shrewd manager knows that the better the conditions under which the employee works, the better will be the output.

Stationary Engineers' Act.

The engineers and manufacturers coming under the conditions of the Stationary Engineers Act have been observing it fairly well. During the few months while this department has been assisting in the enforcement of the Act, good work has been accomplished. Many of the engineers are in favor of a graded certificate.

All of which is respectfully submitted.

S. J. Mallion.

REPORT OF INSPECTOR H. J. TUTT.

SIR,—I have pleasure in reporting a general improvement in the conditions of the factories and shops in my district, and that more attention is given to the safety and comfort of the employees.

In every case when making an inspection I was received in a kindly and business-like way. In many places I was told by the manufacturers that they were pleased to have me call and make an inspection. If I could point out to them how to guard against accidents or to help in any way to improve on what had already been done, they would appreciate it. I have been fairly successful in having dangerous machinery guarded. Employees who at first objected to safeguards are now pleased with them, and realize that they were placed on the machines for their benefit.

SANITARY CONDITIONS.

In connection with the canning factories, evaporators, and bake-shops, they have been greatly improved, and in several cases where the want of drains was felt I called on the owners of the property and pointed out to them how they could benefit their tenants and also improve their property by expending a few dollars. I am pleased to say that in most cases I was successful in getting this work done. I have met some obstinate owners of properties who promised to make the necessary repairs, but apparently had no idea of doing so. However, if, after making a second visit, I found my recommendations were still not carried out, I would hunt up the sanitary inspector and point out the defects to him, and I found that this was a good plan, for in every case the work was done without further trouble.

More attention is being given to the condition of bake-shops; in fact a great improvement has taken place in this line of business. Floors, walls, ceilings, etc., are kept much cleaner. Some shops that last year were far from clean are now in very fair condition. Better store houses have been provided for flour, and conditions have greatly improved.

In several apple evaporators where last year the apples were dumped on the ground, suitable bins are now provided to hold the fruit, and in many cases the bins are under cover. More attention is given to the floors, drying kilns, etc.; in fact, I was much pleased with improvements over last year.

I have given the work of boiler inspection and the enforcement of the Stationary Engineers Act attention, and have followed out the requirements of the Act and found but a very few engineers who had not got the necessary certificate.

I am pleased to state that I had but few cases of a violation of the Child Labor Law.

All other cases pertaining to the Factory and Shops Act I have endeavored to carry out, and I am pleased to report improvement all along the line for the year 1910.

H. J. TUTT.

REPORT OF INSPECTOR MRS. A. BROWN.

SIR,—I beg to submit the following report of the inspection of factories, workshops, and mercantile establishments in my district for the year just ended.

It is not to be expected that every employer will look upon a Factory Inspector as a most welcome visitor, and for that reason we appreciate the courtesy and kindness with which we are, as a rule, received. The few discourteous receptions are overshadowed by the general good feeling displayed by both employers and employees. I have tried to keep before me the fact that "the permanent welfare of any one class cannot be secured without a due regard being paid to the rights and privileges of others," and this has assisted me in my endeavour to deal fairly with all those I have met in the discharge of my duties.

All the work done by an Inspector cannot be recorded. Much cannot be seen as it does not appear on the surface, but foundations are laid for good results in the future. Visits are frequently paid in connection with recommendations made on former inspections, and a conversation with a superintendent or foreman about conditions in his factory will often turn his thoughts in the right direction, when suggestions will be acted upon and improvements follow.

Plain talking is sometimes necessary to make those who think the law would not be enforced, or who had forgotten all about it, understand that it would be carried out strictly; and I think I may say I have been successful in having the law complied with where violations were apparent.

Complaints are always investigated. Some are found to be without any foundation and are made from some purely personal motive.

Where there is any ground for complaint the matter is thoroughly gone into, and the cause removed or remedied in some way.

Child Labor.

It has been said that deeply seated troubles are hard to cure, and as regards child labor it is certainly true. It will require constant care and watchfulness for some time to entirely eradicate this evil, although a great deal has been accomplished in this respect during the past year; but there should be no cases at all. Complaints are sometimes made that "that factory is full of children," and when asked the reason for making such a statement we get the reply, "I see them going in and out every day," and it is hard to convince those people that birth certificates are in the office for perhaps those very children. They are, as usual, judging by appearance only. However, complaints of this kind are not objected to, as they show a more or less healthy interest in the child labor problem, and afford an opportunity to the Inspector to explain the law, and no harm is done, but rather much good. If the meaning of the word "child" as defined by the Act were borne in mind there would be fewer complaints. When labor is scarce and wages therefore good, it is a temptation to parents who have strong healthy children to put them to work; and while there may be some excuse for the statement that a child is better employed than running the streets and acquiring bad habits, employment in factories does not seem to be the solution of the difficulty. It seems to me that the enforcement of the school laws would meet that, and I am convinced that the co-operation of the truant officer would bring good results. Ideals of modern civilization do not exactly harmonize with the many reasons given for employing children. The aim is supposed to be a general uplifting—a desire to secure a happier and healthier childhood. Many parents are trying to give their boys and girls an opportunity to enjoy a better condition of life than was their lot, and make a good many sacrifices in order to do so. Other parents would be just as self-sacrificing did circumstances permit, but when poverty stares them in the face the children must help support themselves. The latter class the employer holds up as

instances to prove that the law is too strict. The plea of necessity, however, is not valid to any extent; and where necessity really does exist the factory, as I said before, is not the solution offered, for the welfare of the child, mental, moral and physical, should take precedence over the necessities of the parents, and under no consideration should he be allowed to become the victim of industrial conditions. A child should be given a fair opportunity to obtain at least an elementary education and attain physical strength. Employers could do much towards assisting in this work by forgetting their own interests for a time and engaging only those who have reached the age prescribed by law.

Sanitation.

Last year I took occasion to deplore certain conditions which existed in the way of lack of privacy in the arrangement and location of toilet conveniences, and am glad to be able to report a marked improvement in this respect, the general standard having improved during the past year. Closets have been removed from some workrooms, or approaches so screened as to remove many objectionable features. Some establishments have provided cloak and wash rooms and some very nice lunch rooms. Such improvements are very much appreciated by the Inspector, as well as the employee, for one always likes to see the fruits of one's labor. There are though, I regret to say, some employers who have rather hazy ideas of what constitutes good healthy and moral surroundings. It does not seem to have occurred to them that the separation of the sexes and strict privacy is conducive, or perhaps I should say, essential, to good morals. Still, in justice to a large majority of employers, it must be said they give commendable care and thought to the welfare and comfort of their employees. The law, of course, has done much to raise the standard of opinion regarding suitable surroundings for women and girls, but there is always room for consideration on the part of the employer and watchfulness on the part of the Inspector, for factories (especially where foodstuffs are manufactured) and workshops can become under some conditions a menace to the public health.

There are those, no doubt, who wonder why people are forced to work under unsanitary conditions, but had they the experience an Inspector has they would not think it singular that such exist, for proper ventilation, plenty of sunlight, proper separation of the sexes, removal of closets from workrooms, etc., are perplexing questions, when situation, available space, and other circumstances are taken into consideration.

Cleanliness.

It seems easier to get employers to guard machinery than to keep workrooms clean, and curiously enough, too, for one entails a certain expense while the other requires only a little extra labor, and both are a menace to life, the only difference being that in one case the danger is imperceptible and in the other quite apparent. Floors on which dust, dirt, and refuse of all kinds are dropped in the course of work, over which feet laden with dust from the streets pass many times during the day, are scrubbed only once or twice a year. I have always recommended that these be scrubbed frequently and regularly. Where floors are swept only, it merely raises in the air particles of dust which have accumulated on the floor. The hygienic effect of cleanliness does not appeal to all employers, and some appear surprised to know that the law requires factories and workshops to be kept in a clean

condition. There may be a few places which are difficult to keep clean, owing to the nature of the work, but in the greater number of workrooms a little labor is all that is necessary, and many recommendations have been made in regard to this requirement of the Act. Clippings, etc., even though dust, and probably germ-laden, seem to be looked upon as "clean" dirt—mere untidiness—and employers forget that disease may be lurking in every rag. Nor is the employee as alive to the danger from this source as he is to the danger of unguarded machinery. This fact I have pointed out to them, and have been pleased to see on my next visit that in a good many cases my words have had effect and conditions have been improved.

An Inspector tries to give the factory manager the benefit of what he has learned in his inspections of other factories, and when some improvement is suggested the person in charge of the factory or shop should not think that his ability to discharge his duties is being called in question.

Ventilation.

In my report last year under this heading, I dealt with the question of the impurity of the air in factories and workshops. It being a matter of some importance, I think I may venture to again refer to it. The impurities in the air in these places arise from different sources, such as bad drainage, escaping gas, dust and fumes from manufacturing processes, and impurities in the outside air. These all should be dealt with at their point of origin, and not be allowed to mix with the general air in the room. Where this is not done, the only remedy is to either increase the ventilation to such an extent as to dilute the impurities, or remove the vitiated air; although this is not always satisfactory, as sufficient ventilation cannot be obtained without exposing the workers to draughts and cold or incurring a great expense in warming the incoming air. Ordinary dust from floors to some extent contaminates the air also. Besides these there are what might be termed accidental impurities. The air will become contaminated by impurities arising from badly kept urinals and water closets, such odors, besides being unpleasant, may effect the general health of those exposed to them, and I have tried to impress upon employers the necessity of keeping places like these scrupulously clean. In many places ventilation has not been considered in the erection of buildings, and permanent methods provided for the introduction of fresh air and the removal of foul.

Although the law is sometimes evaded, it is seldom deliberately opposed. If it were it would be enforced. Employers sometimes promise that they will remedy defects, or say they intend to remodel their buildings and will attend to such matters then; but time slips by and nothing is done. However, any long delay in matters of such importance is not tolerated. While much has been done to improve ventilation in factories and workshops there will still be something to be done as long as buildings are constructed without due regard to this requirement of the Act.

Hours of Labor.

With so much labor saving machinery in use one would think that shorter hours of labor would be introduced, and they should be, but it apparently only increases the supply without reducing the number of working hours. Where machinery is speeded up to the very limit of safety, workers are under a great strain, as it requires much closer attention and is therefore more exhausting mentally. Neither retail nor wholesale dealers care to carry surplus stock, and when their stock is depleted it must be replenished, especially at certain seasons of the year. Permits are

then applied for, the plea being usually "the busy season," and as employees are looking for shorter hours, a reduction not an increase being what is desired, these permits are only issued where it is really necessary. There are no doubt some employers who would be willing to reduce the hours, but when others do not fall in line they are unable to do so, fearing to lose trade. Then, too, where machinery is used they feel it must not be allowed to stand idle. Piecework is another thing which is responsible for a good deal of nervous strain, girls working at a very high tension in order to make a little more money

In cities the hours of employment for women in shops are shorter than elsewhere, the six o'clock closing hour being more generally observed than in small places, where frequently shops are open two or three nights a week. Where cases of this sort have been noticed that section of the Act relating to the hours of employment for girls and women has been brought to the attention of the employer. A law to do away with overtime entirely would seem to be the only remedy. A few cases of only half an hour being allowed for dinner have been noticed and looked into. This is far too short a time for the noon-day meal. For one thing it is not a sufficient break in the middle of the day, when the time taken to prepare for dinner and get to and from the lunch-room is considered. It shortens the time for partaking of the meal, which under these circumstances must be a hurried one, and therefore very hurtful, and a certain amount of rest is essential before returning to work.

Seats.

The question of seats for women and girls in mercantile establishments has demanded some attention this year, in a few places there being an insufficient number. In some places where these have been provided employers appear to entertain the idea that it is unbusinesslike for their employees to be seen sitting down during business hours, and object to their help using them even though the seats are there. The Inspector's appearance on the premises, however, changes the programme, but an Inspector has other duties to perform, and cannot be expected to remain in any particular sale or workroom to investigate trade conditions and see that sales-ladies are permitted to sit down on the seats provided for them when disengaged. Of course, in justice to many employers, it must be said that there are those who have better feelings, and permit their employees to enjoy a few minutes' rest when not actually engaged, which is only right, for there is no question that women and girls are under as great a strain, mentally and physically, in busy mercantile establishments as those employed in factories. They have often a good deal to contend with from both customers and employer, and every consideration should be shown by the employer, because his customers are beyond the reach of the law, and consideration on the part of customers is not always apparent. It may look "unbusinesslike" to be seen sitting down during business hours, but should the health and comfort of an employee be disregarded for such an unreasonable excuse? Employers should also remember that it is more fatiguing to stand than it is to walk.

Guards.

A good many recommendations have been made this year in connection with the protection of shafting under the tables of power sewing machines. This is something which generally requires an explanation, as there is often a misunderstanding as to what constitutes a suitable guard. Usually skirt boards are recommended, but heavy duck drop curtains are sometimes used instead. We do not in-

sist on any one particular kind of guard, but it must be a suitable and sufficient one. The matter of guards is one which requires some supervision, as the employees themselves frequently remove the boards which guard the shafting, or they are removed in order to clean under the tables better, and no system of safeguards can be devised that will insure the safety of operators who are careless or wilfully negligent. No doubt long familiarity with a machine is responsible for a great deal of this carelessness, but unless operators have a sense of personal responsibility for their own safety it cannot be secured. Accidents on these sewing machines are usually caused by the operator stooping down for some article which may have rolled under the table, and her hair having been hurriedly put up, falls down and is caught in the shafting, belting or set-screws. A young girl in one of our cities had her scalp torn off in this way. It was a very bad accident, the skin having to be grafted on three times, and she has not fully recovered yet. Another accident from the same cause was where a girl had her clothing torn off, and although not seriously injured suffered severely from shock. I have always tried to impress on young girls the necessity of wearing their hair dressed closely to the head, but this suggestion is not always acted upon. However, I am pleased to say that accidents to women from machinery this year were comparatively few, and these not of a very serious nature. Of course as long as machinery is used there will no doubt be accidents, and we can only enforce the law in this respect and trust that when employers who are anxious to avoid having accidents provide guards, employees will do their part also. In most cases recommendations made in regard to the protection of shafting, belting, set-screws, etc., on these power sewing machines have been complied with.

Convention.

I had the pleasure of attending the Convention held at Columbia, S.C., and Hendersonville, N.C., last August, and feel it is a privilege as well as a pleasure to attend these Conventions, where the views and experiences of Inspectors throughout the United States and Canada are concentrated and related, and much useful information is acquired. Where people are engaged in the same work the interchange of ideas is very beneficial, as it enables one to see things from "the other man's" point of view, and even if conditions do not warrant our adopting methods that work satisfactorily elsewhere, much good is to be derived from an interchange of thought in connection with a work that is designed to help, uplift and guard the health and life of those to whom the general public is indebted for so much of all it has.

Basement Workshops.

The underground or basement workshop is a troublesome class of place which has nothing to recommend it and should not be in existence. The difficulty of ventilating them properly, the absence of sunlight, and the lack of fresh air, to make no special reference to a manufacturing process, all tend to make them undesirable from a health standpoint. Mechanical means are sometimes used for removing hot air, steam, gas or dust, but are often badly arranged and therefore useless. Many, too, are undrained, or else poorly drained, and unpaved, which leaves them damp and unhealthy to work in, and when a place is infested by mice or other rodents, cockroaches and insects of all kinds peculiar to damp places, it cannot be otherwise than unsanitary. Sometimes these underground workshops have only one small window below the sidewalk or ground level, used in summer for ventilation but closed up the balance of the year, and as no sunlight reaches them

artificial light has to be resorted to, and frequently they are insufficiently lighted and in consequence difficult to keep clean. The air which comes in through the open gratings in the pavements in cities during the warm season is full of impurities, dust and germs, which are bound to be inhaled by those employed within, rendering them susceptible to tuberculosis and like diseases; for it has been proved beyond all doubt that constant inhalation of dust and other impurities irritates the lungs and air passages and lowers vitality. For this reason factory workers, under those conditions, are more liable to fall victims to this disease than any other class of people. Even in the larger establishments where every up-to-date contrivance is employed to make conditions favorable, the basement is an objectionable feature. People were never intended to spend their lives underground like so many moles, away from all sunlight and fresh air. I once heard it remarked that it was "criminal to make anyone work underground." "Criminal" may seem a strong word, but when one thinks seriously about it at all the word appears to be a suitable one; and if this can be said about places where everything is done to make conditions tolerable, what must it be in the smaller and badly kept underground workshops? The underground bakeshop is also to be condemned, perhaps more than other workshops, on account of the nature of the work. In some places in the United States bakeshops are not allowed to be built below grade nor old ones which have been closed up re-opened. They have, too, a regulation governing the height of walls, and both walls and ceiling must be plastered or covered in some way, the floors kept clean and sanitary and rooms dry and airy. This is a condition which should obtain everywhere if basement workshops are permitted.

In conclusion, I may say special attention has been given to the enforcing of the law in regard to the following: The employment of children under age; the mode of wearing the hair while at work; the cleaning of machinery while in motion; the providing of conveniences; the sanitary conditions of factories and shops; the providing of lunch rooms; the storing of inflammable materials; the erection of fire-escapes; the providing of guards for machinery and elevators, etc.; the posting notices in factories; the providing of seats for women and girls in shops, procuring names and addresses of persons to whom contract work has been given out. I feel that I have been successful in having any violations of Factories Act or the Shops Regulation Act remedied, and trust that even better results will attend my efforts during the year 1911.

ANNIE BROWN.

REPORT OF INSPECTOR MARGARET CARLYLE.

SIR,—I have the honor to submit to you my report, which is intended to include as full a statement of duties performed under the Factory Laws as the limits of space will allow.

In giving you a report of factories, workshops and mercantile establishments for the year 1910 I beg leave to state that the conditions have greatly improved for safety, comfort and health. A perusal of this report will give the reader only a partial view of the actual work performed. Our department has passed the experimental stage, and the employer annd employees have learned to look to the Factory Inspector for information on all matters affecting the well-being of both. Employers realize that contented employees are more profitable than those who are constantly kept in conditions which render them dissatisfied or discontented, and that they will not only seek those more favorable factories in which to labor.

but that they will take a personal interest in the welfare and success of the establishment, knowing that their services are appreciated and that their personal comforts receive the careful attention of their employer.

The reception accorded has been most courteous. We are almost universally greeted with an extended hand and the remark, "We are glad to see you." The manufacturers have learned that we are not there to interfere with their business or employees, and that our recommendations are reasonable and for the benefit of all. It is the duty of the Inspector to enforce the Factories Act, and the impression some people seem to have is that this can be accomplished only by invoking the aid of the courts. But that is really the last remedy to be tried, and not by any means the best.

The functions of the Inspector are varied, and that of educating both employer and employees is the best, and is accomplishing a great deal of unquestionably beneficial work by bringing the factory up to a higher standard of safety, comfort and health.

I know of nothing more instructive in the social and domestic life of thousands of our population than is afforded by the development of legislation intended to secure the safety of those engaged in any industrial pursuits. No one is injured when we Inspectors enforce the laws relating to the hours of labor, concerning the ventilation of factories, their proper sanitation, and all health requirements.

The wave of prosperity which began in 1909 in our Province has continued with unabated force, until not only have the unemployed found employment, but it has caused an actual dearth of mechanics in nearly all the trades. This is noticeable more especially among female help. All over the Western part of the Province manufacturers of garments are crowded with orders, and sufficient help cannot be had to operate the machines now in position. This I know is correct, as I go through the factories and see machine after machine standing idle.

It is interesting to note the wonderful development of all around.

Clothing.

The law regulating the manufacturing of clothing has resulted in establishing better conditions. I have followed this industry by ascertaining the number of workshops, small and great, by paying house to house visits in the districts where those shops exist. On the whole, there has been a fair amount of improvement in the way these factories and workshops are kept. I am pleased to state that there has been a general compliance with the orders issued by us.

After a careful inspection, I am fully convinced that there is practically almost nothing of what is termed "sweating" in my district. The "sweating system"—an indefinite term, by the way—has been creating much interest because of the injury to the whole system of the business world. In its literal sense we do not have it in Ontario, nor do we intend letting it get a foothold. Some of these workshops are not as clean as they should be, but this is due in some cases to the prevalent idea of the tenant that he had no duties in connection with the cleaning of the workshop, except the occasional sweeping and washing of floors. When I have pointed out an accumulation of dust and dirt on walls and ceilings I have often received the answer, "The landlord will do nothing." I have to inform him that the cleaning of walls and ceilings come within the province of the tenant, and that it was necessary. The stairs leading to those workshops are not clean sometimes and badly need repairing.

Meanwhile all branches of the ready-made clothing trade, particularly mantles and costumes of all kinds, seem to be increasing steadily. One is surprised to find what skilled and beautiful work the females in those factories are capable of doing. Several of those large firms have made additional workrooms and extensions during the year to meet the growing demand for high-class ready-made clothing.

The standard sanitation in those workrooms is undoubtedly high, especially as regards cleanliness, and one realizes it more and more when inspecting other classes of workshops.

Children.

The important question of child labor is receiving all the attention that the subject demands. Perhaps there is no subject so universally discussed as the one relating to the employment of young children, and very naturally so, for it is one which appeals to every kindly instinct of human nature. We do not suppose that there is any sane person who believes that the employment of children can be wholly checked.

In the course of my inspections I have given special attention to the certificates of ages of children. As I have remarked in former reports, there are some parents who do not regard their children's future welfare to be a matter of sufficient importance to influence them in observing the law. It is from this class that we experience the most trouble. They will freely give certificates to the effect that their children are above the statutory age in order to get them into the factory or workshop. It is very difficult, as everyone knows, to estimate the probable age of a child from its appearance. I think it would be advisable to ventilate this matter by a prosecution of those parents, so that those who are infringing the law in this way will be warned and the children will not be deprived in this way of an education, for that is the first duty owed them.

An age limit is not the best standard to establish, but it appears to be the only feasible one. Yet it is a matter of fact that many children at thirteen years of age are more strongly developed physically than other children at fifteen years of age. Therefore, it is to be regretted that a standard based on intellect instead of physical development cannot be established, especially so when the desired end is to prevent cruelty to children and to decrease the ignorance which results from their early employment. If the employment of children were made impossible without a certificate of certain degree of proficiency from the Public School or some other recognized institution of learning, we should at least have a better informed class of children in the factories. I have no doubt about the result which would follow this change. The school teachers' disinterested certificate of competency would be more reliable than the certificate of the parent or guardian, who is not infrequently impelled to their course by want or in some instances from greed and lack of consideration for the welfare of the child. It is even of more value than the sworn certificate issued by a notary public on the sworn statement of interested parents or guardians.

As a general rule, it may be safely accepted as a fact that a mother will not force her child to work if she can avoid it, but the necessities of home ought not to stand as barriers to the education of the child. If this principle was once established, the truant officers would not be such a necessity, for every parent would then be sufficiently interested in its child's education and the attendance at school will be guaranteed. The great watchword of the youth of our country

is "Opportunity." As far as human laws can control, let them provide for the removal of all barriers, and afford the most liberal equipment for the broadest education of all the children.

Sanitation.

With its many side issues, sanitation has been kept well in the forefront, and has occupied much of the time and attention of the Inspectors.

The matters of sanitary accommodation, temperature and ventilation have bulked prominently in last year's work. Cleanliness and general sanitation are improving in industries of all kinds. The sanitary accommodation in some cases is badly kept. The most of the irregularities are such as need never arise if regular attention were given to this matter. We do not find those conditions where there is a forewoman in charge. For instance, the manager and foreman generally speaking never enters the women's lavatory. This, however, does not seem to me to be a sufficient excuse for the defects found. It is difficult to understand how any manager can really expect these matters to be brought to his notice by his girl employees.

One thing that I do think should be considered is the placing of a forewoman in charge where a number of young girls are employed. Probably those girls would be numbered in some cases by the hundreds. I have brought this matter before the manufacturers wherever the opportunity offered. I have had several women placed. Others have promised to give this matter attention and give it a trial.

Some of those conveniences are an outrage to women's sense of decency and fitness. Several such we have had to deal with this year, and have had to insist upon alterations being carried out at a great cost, which, if included in the original plans, would have made little addition to the first cost. A number of those are of the most primitive kind, communicating directly with the workrooms in which women are employed. Much has been done to improve them, but the nature of the buildings and the surroundings have often presented serious difficulties in bringing the acommodation up to any high standard. The difficulty arises in other places to reserve private accommodation, especially for women, from the joint use of a sanitary convenience by the workers of several workshops. A monthly tenant is not likely to be willing to make alterations involving some outlay, and equally a landlord objects to make alterations which would not be required by a new tenant. In some of the towns where there is no main drainage in the rural districts, the accommodation is primitive, but no worse than in their own homes. Improvements are being made every year. In most factories sanitary arrangements are of a totally different character. The closets have been built off the main staircase, apart altogether from the working rooms. They are of a thoroughly modern and up-to-date description. Many of these for the different sexes are in different parts of the building, while as regards sufficiency the standard of one seat for every twenty-five persons has been, in most cases, fully complied with.

Ventilation.

The subject of ventilation as it relates to the workshop and factories is one of the most important in the whole range of matters which may properly be considered in this report. To the securing of and maintaining a reasonable temperature without thereby interfering with the purity of the air we continue to devote our energies. In this branch of the work most excellent results have been

obtained. Cases both of excessive and deficient temperatures have had to be dealt with, those of the latter kind being the most numerous. As high temperatures occur mostly by reason of the nature of the industry carried on, they are often more difficult to deal with than lower ones.

Attention has been given to see that the means of heating does not interfere with the purity of the air. In many cases objectionable methods of warming have been discarded in favor of better ones. It is surprising how slow some employers are when left to themselves to initiate reforms and remedy defects. There are some industries in which no attempt is made to adequately heat, and the free hand given to the employees with regard to the opening and closing of windows is supposed to meet all requirements. In these cases the warmth is gained at the expense of the workers, who have to sit all day in a varying temperature, the cold atmosphere being as lowering to their vitality and capacity as the vitiated atmosphere. It is a difficult matter for the Inspector to insist on the use of the means of ventilation as long as there is no efficient means of heating. Employees in clothing factories, especially, need light and generally sit under the windows, so that draughts are felt more by them than if their work was less sedentary and if the air had become sufficiently warmed before reaching them. The use of gas irons for pressing necessitates very careful ventilation in order to insure the removal of all gas fumes. Traces of gas are frequently noticeable in such rooms, and are acknowledged to be bad. The owner who admits this, however, often goes on to say: "But you will notice it more coming in from the outside air; we get used to it." Then there is the workroom, which is only ventilated by skylights in the roof, which in wet weather cannot be used. There is also the oft-repeated complaint that the windows cannot be opened because the smut spoiled the work, or the air dried up the glue, or the damp injured the tobacco. If the nature of the work prevents thorough ventilation of the workroom by ordinary means, it would seem that mechanical means ought to be provided, and one cannot blame the occupants of the workroom for excluding the outside air so long as means of sufficient heating are unprovided.

Several proper warming apparatus have been put into workrooms after instructions this year, but the progress made in this direction is still slow. It is the smaller industries carried on in places never intended for workrooms that give us most trouble along this line. These manufacturers are very short-sighted. They should take into consideration the wellbeing and physical comfort of their employees. The money invested in this respect is not thrown away. It is returned manifold by better work, better employees, and greater product for the same length of time.

Sufficiency of air space in factories and workshops is clearly not a difficulty now, as the need for it is generally well known. Occasionally in milliners' or dressmakers' shops, where the usual number of employees is often doubled during a few months in the spring and fall, it almost certainly leads to overcrowding. Not only are these workrooms crowded up to their normal capacity, but these are the very places where there is usually absolutely no means of ventilation except through windows and doors, which are not often opened in winter months. Some of those rooms are heated by a stove and sometimes by steam pipes, which run the temperature up as high as 80 degrees Fahrenheit, thus further adding to the discomfort of the inmates. In the short days of the year, where gas is burned in the workroom for lighting, the air is further vitiated and breathed over and over again.

Now, I do not assert that all workrooms are deficient in the matter of pure air supply; far from it. There are hundreds of factories and workshops where the air is better than in the homes of the workers. Large factories, in general, are nearly all well lighted, well ventilated and well heated, so far as atmospheric conditions go, and are as healthy as any workroom can be.

Canned Goods.

The industries where articles of food are manufactured are improved. There is apparently in all these places a tendency to keep these workrooms clean and in a better condition.

The increasing use of automatic machines makes for freedom from dirt and water. In the large places of recent erection the buildings themselves and the floors are specially made to facilitate cleanliness and freedom from accumulated debris and dirt. Some of the places are very good in this direction and are examples to others where the conditions, so far as cleanliness is concerned, are not quite up to the standard desirable in a place where a food product is manufactured.

Dining-Rooms.

There is scarcely a factory where a great percentage of its employees, through necessity, do not carry their noon-day meal, and partake of it in the building. We have many well-equipped dining-rooms over which there is a competent woman in charge. The room is kept scrupulously clean, well heated, and ventilated. Hot tea and coffee are served. Some factories supply this free of charge, others sell it at the rate of one cent per cup, milk and sugar included. A sufficient number of chairs and tables are placed there also. They supply literature of almost every kind. When the dinner hour arrives the employees who carry their lunch find a convenient and comfortable place in which to partake of it and rest. Alongside the walls will be found shelving partitioned off where the employees place their food on entering the factory, but I am very sorry to say that all factories do not have dining-rooms. In some of these places the employees, upon entering their respective departments in the morning, are compelled to place their food wherever they may best find it convenient. Usually it is as near as possible to where they are at work. In some cases no valid objection can be found to this. However, in other manufacturing establishments, where vapors and gases arise, there can be no more unwise custom. A well-regulated factory should always have a suitable dining-room, provided with a system of storage cases, where employees may find a place to deposit their lunch on entering the factory, free from all noxious fumes, and where it will keep in a palatable condition. Nothing can exceed the discomfort which one finds in small workshops where meals are partaken of. Foods placed on edge or corner of a work table, covered with work, must suffer from the contact, and the employee sitting on the most unrestful kind of a stool, getting neither the change of air nor the rest which the mid-day interval should secure for her. Penned up in a close workroom in one of these factories which I visited I found that the men with whom the girls were working were smoking. This state of affairs I think no employer should allow on his premises. They had no change of air or scene in such shops.

There appears to be much scope for greater thought by the employers on this point.

Accidents.

In the course of our inspection we see the need of proper dressing of slight injuries. It has been noticed that slight injuries in factories do not heal as readily as they should do. This is probably due to the exposure, dirt and dust. Thus prompt and efficient "first aid" is most important. I have noticed a very great improvement along this line in my district this year. In going through one of our large factories in the western part of our Province recently I was very pleased to note all that was being done along this line. They employ from 300 to 400 persons, male and female. They keep a trained nurse for attending to accidents, with all appliances necessary; also a very nicely eqipped hospital. The firm told me that it paid them well. It also saved time. This is not the only one, but it is perhaps the largest. I very often bring this matter before manufacturers and urge them to provide suitable first aid appliances and to have also one or two of their employees trained along this line. Many employers are doing excellent work in this direction. Minor injuries have often proved costly owing to the want of proper treatment at first.

Fire Escape.

In factories where a large number are employed, I have tried to impress upon the employer the great need of a fire drill, also the advantage of affixing a notice (in red letters in a prominent place), reminding workers of their nearest means of escape in case of fire or panic.

Light.

Basement workrooms are rapidly disappearing. They present specially difficult problems, in many cases, as regards heating, lighting and ventilating. Good lighting is necessary, daylight when it can be used being preferred both for the sake of the work and the workers. Some complaints have been received relating to badly lighted rooms in which gas or electric light is used practically all day. These rooms were not really underground rooms, but dark, owing to windows opening close to the other building, and it seems to be very difficult to deal with cases of this kind. Electric light is rapidly taking the place of gas, but it must be a very great strain on the eyesight to work all day by electric light.

In some of the factories the electric light is all reflected on the ceiling and a soft white light is diffused; this makes it very pleasant to work by and causes no strain on the eyes, but I understand it is more costly than the ordinary form of electric light.

I wish here to say that I always feel thankful for any information furnished me from whatever source which may enable me to discharge the duties of the position efficiently and to the end that violations of the law may be avoided; but I cannot help deprecating the over-zealousness which induces some people to inform an Inspector that certain specific violations of the law are taking place, when I find on investigating that these do not exist. A number of complaints received were outside of the scope of Factories or Shops Act, but they voiced, nevertheless, very real needs, particularly those relating to sanitary conditions in offices over which we have no jurisdiction.

Women.

One of the most interesting facts in relation to the employment of women is the constantly enlarging opportunities which are opening to her. There has been for some years a steady increase in the number of places which invite and welcome her into industrial pursuits. The records of this department show how much has been done through our laws for the large number of women who are obliged to labor in factories, shops and mercantile establishments.

Overtime.

An increased number of overtime permits has been issued this year. One reason is due to better observance of the regulations with regard to overtime. Another, the increased trade this year and lack of female help. There are some manufacturers who seem to think on many matters that they need do nothing until the Inspector calls and reminds them of what should be done.

Washing Conveniences.

Washing conveniences are, generally speaking, in large industries, good. We hear very little of the objection so often raised that girls do not use washing arrangements. The reasonableness of this provision has been recognized by employers in an increasing degree.

Seats.

"The occupier of any shop in which females are employed shall at all times provide and keep therein a sufficient number of seats or chairs for the use of every such female, and shall permit her to use such chair or seat when not necessarily engaged in the work or duty for which she is employed." The foregoing is one section of the Shops Act. This provision of seats for women in mercantile establishments is seldom violated. The necessity of making such provision has led to the invention of adjustable seats. These may be placed in narrow space, and are a great improvement on boxes or even stools. In some cases a female can perform her duties just as well sitting on a chair as she can standing, and to require her to become unnecessarily exhausted to simply gratify a silly whim looks too much like tyranny.

I visit mercantile establishments quite frequently, and have had no complaint that the privilege has been abused, or that the results have been hurtful in any way to the firm by which it was granted.

There is abundant reason for the cultivation of a sincere hope that the upward tendency of the conditions now prevailing in factory employment will continue until the places which are now considered below the desired standard of health, comfort and safety will be brought up to the plane on which the best and most desirable are now found.

Margaret Carlyle.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person Injured.	Age.
1	January 18...	Massey-Harris Co.	Toronto	Farm impl.	Thos. McGorman	28
2	" 4...	Ont. Lantern & Lamp Co.	Hamilton	Elec. specialties.	John Alger	..
3	" 4...	Can. Axminster Co.	Hamilton	Carpets	R. Guy	..
4	" 5...	Steel & Iron Co.	Hamilton	Foundry	C. E. Williams.	28
5	" 6...	Penmans Limited	Paris	Knitting	Geo. Newall	19
6	" 8...	Steel & Iron Co.	Hamilton	Foundry	Joseph Lupini	33
7	" 10...	American Can. Co.	Hamilton	Tin cans	T. James	20
8	" 11...	American Can. Co.	Hamilton	Tin cans	John Schneider	27
9	" 10...	James Stuart Mfg. Co.	Brockville	Foundry	Amos Durand	32
10	" 6...	Boeckh Bros Co.	Toronto	Brushes	J. Halstead	27
11	" 9...	McDonald, Burns & Co.	Dresden	Flax	James Johnston	..
12	" 6...	John Morrow Screw Co.	Ingersoll	Screws	Alfred Dodds	18
13	" 6...	John Morrow Screw Co.	Ingersoll	Screws	W. J. Speck	40
14	" 13...	Beardmore & Co.	Acton	Tannery	David Cripps	..
15	" 15...	Beardmore & Co.	Acton	Tannery	Alex. Cripps	..
16	" 5...	Raymond Manf. Co.	Guelph	Sewing machines.	Levi Peer	..
17	" 19...	Can. Westinghouse Co.	Hamilton	Elect. machines.	F. Tansley	..
18	" 13...	McKinnon Dash & Metal Co.	St. Catharines	Dash & mtl. wks.	George Long	49
19	" 15...	Can. Pacific Ry. Co.	West Toronto	Car shops	Hugh McKie	23
20	" 11...	Paris Wincey Mills	Paris	Wincey	James Pearce	41
21	" 14...	McClary Manf. Co.	London	Furnaces, stoves.	W. Fiskeen	35
22	" 15...	Office Specially Co.	Newmarket	Office furn.	Archibald Fraser	25
23	" 12...	Steel & Iron Co.	Hamilton	Foundry	H. Dance	60
24	" 10...	Steel & Iron Co.	Hamilton	Foundry	Rodoe Bodi	30
25	" 16...	Steel & Iron Co.	Hamilton	Foundry	W. Swales	25
26	" 13...	Steel & Iron Co.	Hamilton	Foundry	F. Moore	25
27	" 16...	Steel & Iron Co.	Hamilton	Foundry	Geigi Buicet	18
28	" 19...	Steel & Iron Co.	Hamilton	Foundry	John Slovani	37
29	" 17...	Chaudiere Lumber Co.	Ottawa	Lumber	John Blais	11
30	" 17...	Beardmore & Co.	Acton	Tannery	Frank Smith	..
31	" 13...	Bertram & Sons Co.	Dundas	Machine tools	William Lee	35
32	" 17...	Collingwood Shipbuilding Co.	Collingwood	Shipbuilding	Henry Mitchell	40
33	" 20...	St. Lawrence Starch Co.	Port Credit	Starch	David Schramen	..
34	" 12...	Gutta Percha & Rubber Co.	Toronto	Rubber	Elmer Longheed	..
35	" 24...	Massey-Harris Co.	Toronto	Farm impl.	Joseph Annis	25
36	" 22...	Massey-Harris Co.	Toronto	Farm impl.	M. Bell	30
37	" 21...	Can. Col. Cotton Co.	Cornwall	Cotton	George B. Bailey	42
38	" 4...	Steel & Iron Co.	Hamilton	Foundry	M. Anuage	23
39	" 5...	Steel & Iron Co.	Hamilton	Foundry	A. Robinson	..
40	" 21...	Adams Wagon Co.	Brantford	Wagons	Albert Hesterburg	40
41	" 27...	McKinnon Dash & Metal Co.	St. Catharines	Dash & Metal	I. McCarty	27
42	" 27...	McKinnon Dash & Metal Co.	St. Catharines	Dash, etc.	A. Jewers	45
43	" 26...	Krug Bros.	Chesley	Furn.	Charles Nowack	..
44	" 24...	Can. General Elec. Co.	Peterborough	Electric	G. Burnham	25
45	" 22...	Can. General Elec. Co.	Peterborough	Electric	Geo. Miller	22
46	" 20...	McLaughlin Carriage Co.	Oshawa	Carriage	Robt. Saxby	58
47	" 24...	John Goodison Thresher Co.	Sarnia	Threshing mach.	Thos. Gammon	..
48	" 28...	Massey-Harris Co.	Toronto	Farm impl.	F. Williams	35
49	February 2...	Massey-Harris Co.	Toronto	Farm impl.	C. Richmond	45
50	January 31...	Massey-Harris Co.	Toronto	Farm impl.	S. Travis	20
51	" 25...	Massey-Harris Co.	Toronto	Farm impl.	Alfred Stokes	55
52	" 27...	Stevens-Hepner Co.	Port Elgin	Brushes	John Zant	..
53	" 25...	McLaughlin Carriage Co.	Oshawa	Carriages	John McIllunerry	41
54	" 28...	International Harvester Co.	Hamilton	Harvesters	Toma Fodor	32
55	February 1...	International Harvester Co.	Hamilton	Harvesters	William Raiser	32
56	" 2...	International Harvester Co.	Hamilton	Harvesters	John Rayeroft	31
57	" 1...	Judd Paper Box Co.	Toronto	Paper boxes	A. Chitfe	..
58	January 31...	Ham. Steel & Iron Co.	Hamilton	Steel & iron	George Quance	40
59	" 31...	Gang Tanning Co. Ltd.	Berlin	Tannery	Stephen Panoviz	21
60	February 2...	Copp Clark Co.	Toronto	Lithographing	E. J. Thompson	..
61	" ..	Arbuthnot Bros.	Northfield	Saw mill	—— Stockill	..
62	February 1...	George Pattinson & Co.	Preston	Wollen mfg.	Walter Trew	..
63	" 7...	J. B. Armstrong Mfg. Co.	Guelph	Carriage goods	C. B. Angell	30
64	" 1...	Collingwood Shipbuilding Co.	Collingwood	Shipbuilding	R. Davey	22
65	" 8...	McClary Manf. Co.	London	Stoves	Nicholas Orcharic	35
66	" 8...	Hurley Printing Co.	Brantford	Bookbinding and printing	Nora Connor	2
67	" 7...	Massey-Harris Co.	Toronto	Foundry	E. Kanni	62
68	" 5...	Massey-Harris Co.	Toronto	Farm impl.	W. Dunn	50
69	" 7...	Steel & Iron Co.	Hamilton	Steel & iron	F. Dominio	30
70	" 2...	Can. Pacific Ry. Co.	West Toronto	Car shops	Richard Collins	..
71	" 2...	Steel & Iron Co.	Hamilton	Foundry	William Sperry	20
72	" 3...	Pedlar Metal Roofing Co.	Oshawa	Sheet metal	Charles Holiday	..
73	" 7...	Steel & Iron Co.	Hamilton	Foundry	William Lemonte	50
74	" 8...	Steel & Iron Co.	Hamilton	Foundry	Herbert Hunt	18
75	" 9...	McKinnon Dash & Metal Co.	St. Catharines	Dash & Metal	Herbert Lindsay	21
76	" 12...	Beardmore & Co.	Acton	Tannery	S. Mathews	..
77	" 11...	Dominion Textile Co.	Kingston	Textile	Henry Payne	55
78	" 5...	Bowmanville Foundry Co.	Bowmanville	Castings	Wesley Davis	16
79	" 9...	Steel & Iron Co.	Hamilton	Steel & iron	Dominico Disalbo	28
80	" 15...	Massey-Harris Co.	Toronto	Farm impl.	P. Hannawin	25
81	January 9...	Massey-Harris Co.	Toronto	Farm impl.	E. Callaghan	20
82	" 12...	American Can Co.	Hamilton	Tin cans	Alfred Reger	19

FOR THE YEAR 1910.

Particulars.	No.
Index finger crushed; caught in bearing of bevelling stone.	1
Shoulder dislocated; fell on shafting.	2
Arm broken and slight contusion on head; fell down elevator shaft.	3
Stepped on scrap, and knife bar flew back from machine cutting foot.	4
End of finger cut off while trying to relieve cloth loaded on needles.	5
Foot injured; ore buggy slipped off steel plates on to foot.	6
Finger crushed; was drawn into gear while cleaning machine.	7
Finger bruised and nail torn off while setting machine; hand was drawn into same.	8
Finger jammed; caught between casting and tool while operating lathe.	9
Top of right hand thumb cut off on trimming machine.	10
Wrist cut; caught on collar of shaft.	11
Finger crushed and had to be amputated; caught in machine	12
Arm broken and thumb pulled off while flattening wire lacing on shaft in motion.	13
Hand lacerated; came in contact with bit on boring machine.	14
Hand lacerated; came in contact with dado head.	15
Struck over eye while working on shaper; belt broke.	16
Thumb taken off at first joint while operating punch press.	17
Rib broken; struck by lid of tumbling barrel.	18
Finger crushed; while replacing rocker box on engine it slipped and fell on hand.	19
*Killed while putting belt on pulley.	20
Eye and head burned; molten metal splashed up when poured into wet trough.	21
*While sliding off belt connecting drop hammer with line shaft was caught and thrown to floor.	22
Lip cut and two teeth knocked out; struck by piece of scrap from shears.	23
Finger hurt; steel blown from buggy rolled on hand.	24
Back and leg injured; fell from ladder while putting pan on crane.	25
Eyes burnt; while taking scale from squeezer muck ball exploded.	26
Back seriously injured; struck by piece of ore which fell from barrow.	27
Knee injured; while unloading scrap, slipped and knee struck rail.	28
Flesh wound on hand; came in contact with boring bit.	29
*While working around some leaches stepped into one scalding himself fatally.	30
Finger crushed and nail splintered; while operating planer.	31
Eye cut; while cutting rivets a small piece flew into eye.	32
Arm broken while trying to throw a belt off pulley.	33
Thumb sprained and partly dislocated while pushing belt into sewing machine.	34
Finger crushed at first joint; caught in moulding machine.	35
Foot burned; molten iron splashed into boot.	36
Arm broken; piece flew out of lathe.	37
Toes bruised; while unloading blooms one rolled on foot.	38
Left foot smashed, bloom from buggy rolled on foot.	39
Collar bone fractured; board slipped from lumber pile and struck shoulder.	40
Third finger crushed on power press while punching metal goods.	41
Face and arm burned by gas explosion.	42
Tips taken off four fingers while operating rip saw.	43
Third finger jammed; caught between drum of wire and car door.	44
Index finger split down centre, and second smashed while operating punch press.	45
Hands and face scalded; elbow on steam pipe burst.	46
Toe crushed; while working on lathe face plate fell on foot.	47
Hand bruised; half of iron flash fell on hand.	48
Toe bruised; allowed reaper drive wheel to fall.	49
Hand bruised; struck by piece of wood he was turning.	50
Hand cut between thumb and index finger by section of knife.	51
Portion of left hand finger taken off on wood shaper.	52
*Fell through sky light on top of boiler house while sweeping shavings off roof.	53
Two fingers lost; two fractured; caught under cross head of hammer while removing castings.	54
First phlange of right finger amputated; caught in die press.	55
Concussion of brain; head struck on machine; sleeve caught in boring tool.	56
Fell into hoist and shaken badly; elevator door open during repairs.	57
Foot and leg burned by gas while drilling through iron notch of furnace.	58
Arm injured and had to be amputated while operating unhairing machine.	59
Thumb cut off on cutting machine.	60
Hand slightly injured on saw while reaching for shingle.	61
Left arm caught between cylinders of washing machine and bruised.	62
While thawing over head steam pipes fell, dislocating shoulder.	63
Head cut, arm and back sprained, fell from beam.	64
Body and legs burned by moulten iron.	65
Three fingers injured; bones of two fractured while operating Gordon press.	66
Finger cut; hand caught in moulding machine.	67
Hand bruised; caught between drill frame and truck.	68
Eyelid cut; while breaking a piece of kindling piece struck eye.	69
Face burnt; while passing tins of carbide with torch carbide ignited.	70
Right foot crushed; bar of pig iron came down on foot.	71
Three fingers injured on shear blade; had to be amputated.	72
Foot bruised; chain broke while moving shaft and it fell on foot.	73
Leg broken below knee; piece of ore rolled from pile.	74
Thumb and finger punched by power press.	75
Concussion of brain; fell off scaffold.	76
Back hurt and two ribs broken; slipped and fell.	77
Ends of two fingers off right hand, and second finger off left, operating press.	78
Foot bruised; steel billet fell from pile.	79
Left foot toe bruised; piece of pig iron fell on foot.	80
Toe bruised; piece of pig iron fell on foot.	81
Eye burned by hot solder.	82

*Fatal.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person injured.	Age.
[illegible]	January 16...	Can. Pacific Ry. Co.	West Toronto...	Car shops	Wm. Forthey	65
[illegible]	" 15...	Thomas Bros.	St. Thomas	Brushes	Frank Elliott	42
[illegible]	" 19...	Thomas Bros.	St. Thomas	Brushes	Chris Erb	27
[illegible]	" 15...	Steel & Iron Co.	Hamilton	Foundry	B. Bennett	48
87	" 19...	Stevens-Hepner Co.	Port Elgin	Brushes	George Hepburn	[illegible]
[illegible]	" 19...	Massey-Harris Co.	Toronto	Farm impl.	C. Verney	39
[illegible]	" 18...	Gendron Manf. Co.	Toronto	Reed furn.	Israel Ratelle	[illegible]
[illegible]	" 19...	Massey-Harris Co.	Brantford	Farm impl.	Artan Yarkarian	40
91	" 22...	Steel & Iron Co.	Hamilton	Foundry	George James	30
[illegible]	" 23...	Wm. Davies Co.	Toronto	Pork packers	George Christoll	19
[illegible]	" 18...	Stauntons Limited	Toronto	Wall paper	Wm. Herus	32
[illegible]	" 22...	B. F. Ackerman Son & Co.	Peterborough	Harness	Bert Martin	23
95	" 10...	Palter Bros.	Toronto	Cloth hats	Marion Dickson	25
[illegible]	February 17...	Gurney Tilden Co. Ltd.	Hamilton	Foundry	H. Bawden	55
97	" 17...	Gurney Tilden Co. Ltd.	Hamilton	Foundry	T. Hobson	[illegible]
98	" 17...	Gurney Tilden Co. Ltd.	Hamilton	Foundry	A. McCullen	32
[illegible]	" 21...	Can. Pacific Ry. Co.	West Toronto	Car shops	G. Chiarcosi	31
[illegible]	" 22...	Sherlock Manning Co.	London	Organs	Chas. Norman	23
[illegible]	" 18...	Canada Cycle & Motor Co.	Toronto	Motors	Bert Harcourt	24
[illegible]	" 24...	Alfred Sykes	Georgetown	Woollens	William Sims	[illegible]
[illegible]	" 25...	Bell Thread Co.	Hamilton	Sewing cotton	Nellie Hendry	[illegible]
[illegible]	" 22...	American Can Co.	Hamilton	Tin cans	Frank Osborne	21
[illegible]	" 16...	Can. Gen. Electric Co.	Peterborough	Electric works	T. Brownlee	25
[illegible]	" 15...	Can. Gen. Electric Co.	Peterborough	Electric works	W. H. Suddards	24
107	" 26...	Goldie & McCulloch	Galt	Engines & boilers	T. Bryden	27
[illegible]	March 1...	McLaughlin Carriage Co.	Oshawa	Carriages	John Donelley	48
[illegible]	February 19...	Jones Bros.	Dundas	Interior fitting	Charles Karde	30
[illegible]	" 23...	Steel & Iron Co.	Hamilton	Steel & iron	James Dobie	50
[illegible]	" 23...	Steel & Iron Co.	Hamilton	Steel & iron	Jas. Martishanno	50
[illegible]	March 1...	Taylor-Forbes Co.	Guelph	Hardware	Geo. Stephenson	[illegible]
[illegible]	February 26...	Can. Pacific Ry. Co.	West Toronto	Car shops	Ciro Farina	21
114	" 11...	Ont. Iron & Steel Co.	Welland	Steel & iron	James Holmes	34
[illegible]	March 2...	Massey-Harris Co.	Toronto	Farm impl.	C. Carruthers	34
[illegible]	" 3...	Massey-Harris Co.	Toronto	Farm impl.	James Manson	24
[illegible]	" 5...	Massey-Harris Co.	Toronto	Farm impl.	J. Wilson	25
[illegible]	" 1...	Zimmerman Bros.	Tavistock	Furn.	William Capling	14
[illegible]	" 4...	Imperial Cotton Co.	Hamilton	Cotton	Mary Taylor	[illegible]
[illegible]	" 5...	Steel & Iron Co.	Hamilton	Steel & iron	James Tabien	30
[illegible]	" 4...	Steel & Iron Co.	Hamilton	Steel & iron	A. Chappell	25
[illegible]	" 7...	Steel & Iron Co.	Hamilton	Steel & iron	Seraphine Media	27
[illegible]	" 10...	Steel & Iron Co.	Hamilton	Steel & iron	Yats Sarte	25
[illegible]	" 10...	Steel & Iron Co.	Hamilton	Steel & iron	Thomas Poryant	32
[illegible]	" 3...	Steel & Iron Co.	Hamilton	Steel & iron	Glizoi Comsa	30
[illegible]	" 2...	International Harvester Co.	Hamilton	Harvesters	Alex. Barber	21
[illegible]	February 25...	International Harvester Co.	Hamilton	Harvesters	John Roberts	35
[illegible]	March 3...	McClary Manf. Co.	London	Stoves	William Seldon	17
[illegible]	February 22...	Stevens-Hepner Co.	Port Elgin	Brushes	Henry Strathy	30
[illegible]	March 3...	McKinnon Dash & Metal Co.	St. Catharines	Dash & Metal	Robert Black	30
[illegible]	" 5...	McClary Manf. Co.	London	Stoves	C. H. Hockaday	21
[illegible]	February 28...	McCormick Manf. Co.	London	Biscuits	James Tiney	[illegible]
[illegible]	" 25...	Can. Canners Ltd.	Simcoe	Canning	Lucy Bridgewater	[illegible]
[illegible]	March 11...	American Can Co.	Hamilton	Tin cans	Wm. Lucas	17
[illegible]	" 11...	American Can Co.	Hamilton	Tin cans	Annie Fergus	23
[illegible]	" 11...	American Can Co.	Hamilton	Tin cans	D. Jackson	23
[illegible]	" 7...	[illegible] Hersey Iron Tube Co.	Guelph	Iron pipes	Junius Bollen	16
[illegible]	" 5...	Gananoque Bolt Co.	Gananoque	Bolts & nuts	Alfred Laver	[illegible]
[illegible]	" 7...	Massey-Harris Co.	Toronto	Farm impl.	C. N. Kelley	21
[illegible]	" 8...	McClary Manf. Co.	London	Stoves	W. Parsons	31
[illegible]	" 12...	Joseph Simpson & Sons	Toronto	Knitted underwear	May Burley	[illegible]
[illegible]	" 10...	Steel & Iron Co.	Hamilton	Steel & iron	J. Langan	35
[illegible]	" 11...	Steel & Iron Co.	Hamilton	Steel & iron	E. Bush	15
[illegible]	" 14...	Steel & Iron Co.	Hamilton	Steel & iron	C. Bredenger	25
[illegible]	" 8...	Steel & Iron Co.	Hamilton	Steel & iron	W. Burns	20
[illegible]	" 4...	Steel & Iron Co.	Hamilton	Steel & iron	D. Bissex	40
[illegible]	" 8...	American Can Co.	Hamilton	Tin cans	Edward Brown	30
[illegible]	" 11...	Thomas Bros.	St. Thomas	Brushes	Charles La Rue	26
[illegible]	" 13...	Canadian Tungsten Co.	Hamilton	Lantern & lamps	Florence Webb	[illegible]
[illegible]	" 14...	McKinnon Dash & Metal Co.	St. Catharines	Dash & Metal	H. Christie	25
[illegible]	" 12...	John Campbell & Sons	London	Carriages	Wm. Scott	[illegible]
[illegible]	" 17...	Toronto Matzo Co.	Toronto	Bakery	Louis Langwahld	25
[illegible]	" 17...	Kenchtel Furn. Co.	Hanover	Furniture	David Wedow	18
[illegible]	" 16...	Imperial Rattan Co.	Stratford	Chairs, etc.	James Jenkins	37
[illegible]	" 14...	Steel & Iron Co.	Hamilton	Steel & iron	G. Willy	20
[illegible]	" 21...	Steel & Iron Co.	Hamilton	Steel & iron	Charles Rose	22
[illegible]	" 20...	Steel & Iron Co.	Hamilton	Steel & iron	Nicholas Drogich	25
[illegible]	" 21...	McKinon Dash & Metal Co.	St. Catharines	Dash & metal	H. Mitchell	35
[illegible]	" 21...	Steel & Iron Co.	Hamilton	Steel & iron	Roco Gualia	25
[illegible]	" 23...	Massey-Harris Co.	Toronto	Farm Impl.	Thomas C. Burne	23
161	" 17...	Massey Harris Co.	Toronto	Farm Impl.	P. Howe	23
[illegible]	" 13...	W. J. Gage & Co.	Toronto	Stationers	Roland Harris	[illegible]
[illegible]	" 16...	London Machine Tool Co.	Hamilton	Tools	Frank Walker	17
164	" 14...	Can. Gen. Electric Co.	Peterborough	Electric works	L. Heath	17
[illegible]	January 27...	Galt Malleable Iron Co.	Galt	Iron	George Kalamen	18

FOR THE YEAR 1910.

Particulars.	No.
Second finger crushed and nail taken off third; equalizer fell on hand.	83
Two fingers cut, and had to be amputated, while operating rip saw.	84
Loss of third finger; three others cut also; drawn into re-saw.	85
Fingers crushed while operating scrap iron shears.	86
Hand badly cut on swing cut-off saw.	87
Foot and ankle bruised; angle iron fell on foot.	88
Finger crushed under press.	89
Leg broken; while unloading lumber was pinned against car.	90
Hand crushed; caught between pile of steel slabs and lift.	91
Head crushed; was caught in elevator.	92
Hand squeezed; caught between print roller and drum of printing machine.	93
Finger jammed on power press.	94
Arm dislocated; apron caught in shaft.	95
*Suffocation—fire in building.	96
Wrist sprained; accident caused by fire in building.	97
*Suffocated by fire.	98
Head cut; ladder fell on him.	99
Three fingers cut on jointer and had to be amputated.	100
Shoulder strained; sleeve caught in dog in lathe and arm was drawn in.	101
Back of head cut; steam press exploded and he fell.	102
Left hand fingers injured in gears of machine.	103
Finger cut by tops of cans.	104
Foot and ankle bruised; slipped on ice on car.	105
Finger taken off while operating punch press.	106
Foot burned by iron from ladle.	107
Lip cut and tooth broken; piece of iron flew up from shears.	108
Little finger injured while operating buzz plane; had to be amputated.	109
Left arm broken; struck by piece of scrap and knocked down.	110
Toe broken; while breaking sprues off ingots one rolled on foot.	111
Finger injured; caught between two gears on machine.	112
Foot bruised; coach wheel fell on foot.	113
Foot crushed in conveyor.	114
Right foot bruised; let beam steel fall.	115
Frame of drill fell on foot bruising it.	116
Finger crushed; caught between steel and stripper of punch.	117
Three fingers cut off; slipped between rollers of box matcher and board.	118
Hand crushed; slipped and hand went into gears.	119
Back cut; struck by iron staple.	120
Knee cut; struck by piece of boiler plate.	121
Finger crushed; while hooking into lugs on box hand caught between box and chain.	122
Finger broken; while pulling rails up skid one rolled on hand.	123
Foot bruised; while helping to lift pipe it fell on foot.	124
Thumb cut with scrap iron shears.	125
Index finger taken off and two others fractured while operating drop hammer.	126
Four fingers fractured while operating drop hammer.	127
Top of finger taken off on small cutting press.	128
Hand cut (underside) on woodshaper.	129
End of finger punctured and nail taken off while punching goods on power press.	130
Top of index and second finger injured on drop hammer.	131
Arm broken; caught between slats of conveyor.	132
Bone of little and next finger broken; on die press.	133
Hand cut; fell over box and hand came in contact with sharp edge of cans.	134
Finger cut while sorting caps.	135
Finger cut; caught in circular knives of slitter.	136
Hands and body burned by hot pipe.	137
Face and arm burned; fell while carrying acid.	138
Ball of eye injured; struck by chip of steel.	139
Finger partly taken off; tripped on small standard press.	140
Little finger slightly hurt; struck against case of goods.	141
Hands and leg burned; fell on hot bars.	142
Shoulder and back bruised; while laying planks across engine foundations fell.	143
Foot crushed; caught in crane.	144
Toes bruised; steel ingot fell on foot.	145
Toe crushed; steel billet fell on foot.	146
Finger cut; slipped under punch.	147
Sliver through thumb and first finger; piece flew from rip saw.	148
Badly shaken up; fell down dumb waiter shaft.	149
End of finger taken off; while setting up a machine caught finger in cog wheels.	150
Struck in side by piece of wood from saw.	151
Hand crushed in rollers of reversible brake machine.	152
Two fingers lacerated; came in contact with sticker knives.	153
Slipped and fell, breaking leg.	154
Finger smashed; caught between two steel ingots.	155
Finger smashed; caught between two blooms.	156
Toe bruised; while knocking off sprues on bloom one hit foot.	157
Face and arm burned by acid; while removing plug from drum acid flew out.	158
Shoulder bruised; oil box fell from crane and struck shoulder.	159
Arm and body bruised; clothing caught on shafting.	160
Index finger taken off, and nail off thumb; caught in press.	161
Ends of two fingers crushed; while operating pressing machine.	162
Three fingers taken off; hand slipped into planer knife.	163
Back of hand bruised; caught in lacing of belt.	164
Ear cut, face and jaw injured; was drawn by pulley between revolving tumblers.	165

* Fatal.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person injured.	Age.
166	March 29...	Steel & Iron Co.	Hamilton	Foundry	John Collins	40
167	" 28...	Steel & Iron Co.	Hamilton	Foundry	R. Barham	36
168	" 24...	Steel & Iron Co.	Hamilton	Foundry	Nazerene Mercuri	30
169	" 24...	Steel & Iron Co.	Hamilton	Steel & iron	Rocco Vivla	..
170	" 1...	Steel & Iron Co.	Hamilton	Foundry	W. Wamsley	28
171	" 18...	Steel & Iron Co.	Hamilton	Foundry	Steve Pota	40
172	" 24...	McKinnon Dash & Metal	St. Catharines	Dash & metal	M. Yekencollan	35
173	" 19...	Can. Gen. Electric Co.	Peterborough	Electric works.	D. Desantel	66
174	" 18...	Can. Gen. Electric Co.	Peterborough	Electric works.	J. Landry	27
175	" 19...	Can. Gen. Electric Co.	Peterborough	Electric works.	F. V. Haskell	23
176	" 29...	Massey-Harris Co.	Toronto	Farm impl.	Charles Busby	27
177	" 21...	Massey-Harris Co.	Toronto	Farm impl.	H. Garrett	55
178	" 24...	Ont. Malleable Iron Co.	Oshawa	Foundry	John Stacey	65
179	" 31...	Can. Carriage Co.	Brockville	Carriages	George Sellech	30
180	" 30...	Freyseng Cork Co.	Toronto	Corks	Marie Davis	16
181	" 29...	O. & W. McVean.	Dresden	Spokes	Ralph Gale	..
182	" 23...	George McLagan.	Stratford	Furniture	Charles Cook	..
183	" 22...	Ont. Iron & Steel Co.	Welland	Castings	Wm. Barnes	29
184	" 15...	Can. Pacific Ry. Co.	Welland	Car shops	Charles Exton	30
185	" 18...	Krug Bros.	Chesley	Furniture	H. Dent	..
186	" 11...	John Logan	Toronto	Brick	Harry Black	..
187	February 19...	Frost & Wood	Smith's Falls	Agricultural Impl.	Edward A. Keays	24
188	March 1...	Frost & Wood	Smith's Falls	Agricultural Impl.	Ogle Webster	20
189	" 24...	Can. Gen. Electric Co.	Peterborough	Electric works.	H. C. Davies	23
190	" 30...	Keewatin Lumber Co.	Keewatin	Lumber	A. Norens	..
191	" 31...	Ont. Iron & Steel Co.	Welland	Foundry	Harry McIvor	28
192	" 26...	Firstbrook Box Co.	Penetanguishene	Boxes	Gideon Geason	16
193	" 23...	McGregor & McIntyre	Toronto	Steel works	A. Ornotski	20
194	April 5...	Guelph Worsted Spinning Co.	Guelph	Woollens	Fred Pembleton	14
195	" 1...	Collingwood Shipbuilding Co.	Collingwood	Shipbuilding	C. Moore	30
196	" 1...	Can. Pacific Ry. Co.	West Toronto	Car shops	John Doyle	39
197	" 1...	McLaughlin Carriage Co.	Oshawa	Carriages	Wm. Hamilton	44
198	" 2...	Can. Carriage Co.	Brockville	Carriages	Thomas Holman	58
199	" 6...	Massey-Harris Co. Ltd.	Toronto	Farm Impl.	Charles Annis	26
200	" 7...	Bell Piano & Organ Co.	Guelph	Pianos	John McCann	60
201	" 5...	London Machine Tool Co.	Hamilton	Tools	A. Patrick	28
202	" 4...	Keewatin Lumber Co.	Keewatin	Lumber	Thomas Winters	..
203	" 7...	McClary Manf. Co.	London	Stoves	Ira Hollman	30
204	" 1...	Capital Brewing Co.	Ottawa	Brewery	George Piton	..
205	" 12...	Stratford Manf. Co.	Stratford	Furniture	Frank Wagner	..
206	" 5...	Ont. Iron & Steel Co.	Welland	Steel & iron	J. Oisckrultz	30
207	" 11...	W. J. Gage & Co.	Toronto	Envelopes	James Galloway	..
208	" 15...	American Can Co.	Ingersoll	Cans	Thomas Toner	16
209	February 19...	Ingersoll Nut Co.	Ingersoll	Nuts	Jas. Jackson	40
210	April 7...	Massey-Harris Co.	Toronto	Farm Impl.	W. Atkinson	22
211	" 7...	John Goodison Thresher.	Sarnia	Farm Impl.	Wm. Lingeard	..
212	" 11...	Frost & Wood	Smith's Falls	Agricultural Impl.	George Love	52
213	March 30...	Frost & Wood	Smith's Falls	Agricultural Impl.	Arthur Cox	32
214	April 12...	Provincial Steel Co.	Cobourg	Steel	Isaac Markle	58
215	" 11...	Massey-Harris Co.	Brantford	Farm Impl.	Mark Lister	27
216	" 18...	Gendron Manf. Co.	Toronto	Vehicles	B. E. Bedley	..
217	" 11...	Can. Colored Cotton Mills.	Hamilton	Cotton	Maggie Gorman	25
218	" 18...	Gendron Manf. Co.	Toronto	Vehicles	Lester Snooks	..
219	" 12...	Goderich Organ Co.	Goderich	Organs	Ernest Kemp	20
220	" 12...	Kenchtel Woodturning Co.	Southampton	Woodturning	Johnathan Rawn	..
221	" 11...	Massey-Harris Co.	Toronto	Farm impl.	J. Davidson	30
222	" 14...	Massey-Harris Co.	Toronto	Farm impl.	T. Sennack	21
223	" 7...	Can. Gen. Electric Co.	Peterborough	Electric works.	M. Mowry	18
224	" 4...	Toronto Bedding Co.	Toronto	Mattresses, etc.	C. Berwick	15
225	" 8...	International Harvester Co.	Hamilton	Farm impl.	Henry Sutton	..
226	" 13...	International Harvester Co.	Hamilton	Farm impl.	James Mallaghan	42
227	" 12...	Trenton Cooperage Mills.	Trenton	Heading, etc.	T. McPherson	..
228	March 22...	Ont. Iron & Steel Co.	Toronto	Iron & steel	Harmon Cosby	24
229	April 18...	Ont. Malleable Iron Co.	Oshawa	Iron	David Stratton	..
230	" 16...	Steel & Iron Co.	Hamilton	Steel & iron	Joseph Nero	40
231	January 17...	American Can Co.	Hamilton	Cans	Thos. Vanalstyne	..
232	April 7...	Office Specialty Co.	Newmarket	Furniture	E. Baker	30
233	" 5...	American Can Co.	Hamilton	Cans	Pearl Martin	16
234	" 18...	Can. Pacific Ry. Co.	West Toronto	Car shops	George Shannon	55
235	" 21...	Gendron Manf. Co.	Toronto	Vehicles	W. Lang	..
236	" 21...	Gendron Manf. Co.	Toronto	Vehicles	Alph. Tremblay	..
237	" 16...	Taylor-Forbes Co.	Guelph	Castings	John F. Marr	..
238	" 15...	St. Catharines Woollen Mills Co.	St. Catharines	Yarns	James Stevens	..
239	" 21...	D. & Perrin & Co.	London	Biscuits	Fred Sanders	..
240	" 18...	McCormick Manf. Co.	London	Biscuits	Percy Pawley	20
241	" 25...	Pilkin Iron Works	Toronto	Boilers	James Wallace	49
242	" 26...	Steel & Iron Co.	Hamilton	Iron & steel	Robert Forbes	..
243	" 20...	Thomas Bros.	St. Thomas	Brushes	Nellie Shuttle	16
244	" 21...	McClary Manf. Co.	London	Biscuits	James Parker	61
245	" 21...	McDiff Chair Co.	Cornwall	Furniture	Henry Denosha	..

FOR THE YEAR 1910.

Particulars.	No.
Finger broken; jammed between casting and edge of box.	166
Foot bruised; bar of iron fell from cradle.	167
Leg and back burned; while drilling hole in front of iron notch of blast furnace iron burst and struck him.	168
Leg burned; while drilling hole iron burst.	169
Elbow cut; fell on piece of slag.	170
Toes bruised; while knocking sprues off bloom one fell on foot.	171
Body burned by molten iron.	172
Vein severed in arm; while cutting steel a piece flew up.	173
Finger jammed; while holding piece of plate plunger came down on hand.	174
Gash over eye; fell against drill press.	175
Let binder table fall and point of guard pierced top of left foot.	176
Fell off step ladder and sprained wrist.	177
Head slightly cut; brick fell from overhead railway.	178
Hand cut; came in contact with shaper knives.	179
Right little finger severed between first and second points on tapering machine.	180
Two fingers and part of thumb taken off in spoke throating machine.	181
Four fingers injured on rip saw.	182
*While fixing a wire fell from cage over crane.	183
Finger crushed and nail torn off while preparing to drill piston head.	184
Fell off trestle work and sustained serious injuries.	185
Scalp wound and flesh torn from elbow; sleeve caught on head of set screw drawing him against engine.	186
Toe injured and had to be amputated; emery wheel slipped from truck.	187
Arm cut; mitten got tangled in set screw on drill press.	188
Hands burned and face singed; while making connection on switch board.	189
While oiling rotary saw dropped on can and it was thrown back, cutting face.	190
Arm broken; while putting belt on pulley was pulled against shaft.	191
Thumb cut while operating rip saw.	192
Four fingers cut off right hand on angle shears.	193
*Elevator cable broke.	194
Bruised; while loading stone large stone fell pinning him to the ground.	195
Ear torn and head bruised; struck by end of plank while raising scaffold.	196
Top of thumb taken off on power punch.	197
Arm bruised; emery wheel broke.	198
Hands, arms, and face burned, by steam from furnace.	199
Scalp wound and shock; fell down elevator shaft from floor to basement.	200
Middle finger injured; drill passed through knuckle.	201
Nail of second finger; caught while putting belt on pulley.	202
Face burned; threw benzine on fire to hasten it.	203
Chest and arms bruised; caught in revolving shaft.	204
Portion of end of middle fingers taken off while operating jointer.	205
Fingers crushed and had to be amputated; caught between two steel ingots.	206
Two fingers crushed while feeding sheets in bronzing machine.	207
Fingers cut; caught under knife of notching machine.	208
Last forefinger; crushed between nut and nut holder while taking nut from drill.	209
Thumb cut; caught in spoke lathe.	210
Foot bruised; piece of iron fell on it.	211
Back and shoulders hurt; two ribs factured while pulling over pile of spring lift rake.	212
While standing on a box it was struck by a truck and toppled over on him.	213
Hip bruised; struck by crane load and knocked on pile of rails.	214
Arm broken; struck by a board from saw.	215
End of finger injured; caught in press.	216
Face scalded by water and steam from vapor pot; opened valve by mistake.	217
End of finger injured; caught in press.	218
Thumb cut; while cutting felt, hand slipped against knife.	219
*Struck in abdomen by piece thrown back from rip saw.	220
Leg and foot bruised; while unloading car wheel fell.	221
Finger bruised; hand caught between wheelbarrow and door.	222
Top of finger cut off; hand slipped under blade of foot shears.	223
Leg broken; backed down elevator shaft.	224
Right hand taken off on wood working machine.	225
Eye injured; while striking sprue off moulds scrap flew into eye.	226
Thumb and finger cut off while cutting staves.	227
Face, neck, and shoulders burned by hot ashes from fire box of furnace.	228
Hand badly injured in planer.	229
Foot bruised; while knocking sprues off ingots one rolled on foot.	230
Ankle twisted; fell off elevated plank.	231
Finger split from nail to first joint; hand came in contact with rip saw.	232
Third finger cut; finger slipped under knife.	233
Eye cut by piece of steel while trimming flattener.	234
Three fingers crushed; carelessness.	235
End of finger slightly cut; carelessness.	236
Hand cut by chisel; artery severed.	237
Rib broken; while throwing belt on machinery was caught and carried over shaft.	238
Two fingers cut off at first joint; caught fingers in pan carrier.	239
Finger injured and had to be amputated; caught between pair of small rollers.	240
Bones in right foot broken; shaft fell across man's foot.	241
Finger crushed; while pulling coupling pin was caught between iron box and pin.	242
Back of right hand punctured while operating brush filling machine.	243
*Head crushed in elevator.	244
Thumb cut and had to be amputated; piece of lumber flew back from rip saw allowing thumb to drop on saw.	245

*Fatal.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person injured.	Age.
246	April 22...	Imperial Cotton Co.	Hamilton	Twine	Mabel Read	..
247	" 20...	Hamilton Steel & Iron Co.	Hamilton	Twine	Joseph Noviski..	21
248	" 13...	Steel & Iron Co.	Hamilton	Steel & iron	J. Listen	48
249	" 16...	Steel & Iron Co.	Hamilton	Steel & iron	B. Graham	52
250	" 11...	Scotland Box Manf. Co.	Scotland	Boxes	Louis Markle	50
251	" 16...	McFarlane & Douglas.	Ottawa	Building material	Alfred Boyer	..
252	" 22...	Can. Gen. Electric Co.	Peterborough	Electric works...	W. E. Porter	32
253	" 27...	McDonald Manf. Co.	Toronto	Lithographing (tin)	Dan Smith	..
254	" 23...	Collingwood Shipbuilding Co..	Collingwood	Shipbuilding	John Switzer	40
255	May 3...	Can. Westinghouse Co.	Hamilton	Electric works...	H. Thompson	..
256	" 2...	Trenton Cooperage Co.	Trenton	Cooperage	Albert Reynolds.	..
257	" 3...	Can. Tap & Die Co.	Galt	Dies, etc.	Percy Grob	..
258	April 28...	S. Brown	Toronto	Carriages	P. Rabonvitch...	26
259	May 2...	Page-Hersey Iron Tube	Welland	Iron tubes	Joseph Withers..	27
260	April 29...	J. R. Booth	Ottawa	Lumber	Alfred Phillips..	38
261	May 3...	Gillies Bros.	Braeside	Lumber	Walter Leblanc..	20
262	April 26...	International Harvester Co.	Hamilton	Harvesters	Thomas Coleman.	37
263	" 30...	International Harvester Co.	Hamilton	Harvesters	Joseph Hurduban	28
264	" 27...	International Harvester Co.	Hamilton	Harvesters	Ontar Molnar...	50
265	" 25...	Goderich Organ Co.	Goderich	Organs	Wm. Morrish...	25
266	" 27...	Goderich Organ Co.	Goderich	Organs	George Scott...	25
267	" 27...	Goderich Organ Co.	Goderich	Organs	Norman Nickle..	20
268	" 4...	Eddy Bros.	Blind River	Lumber	N. Prevencher...	40
269	" 4...	Ives Modern Bedstead Co.	Cornwall	Bedsteads	Rame Lalonde...	14
270	" 28...	W. H. McAuliffe	Ottawa	Lumber	Albert Blair...	27
271	May 3...	Peerless Brick & Tile Co.	Ottawa	Brick	W. Wilson	32
272	" 5...	Massey-Harris Co.	Toronto	Farm impl.	M. Burns	50
273	April 1...	Reo Motor Car Co.	St. Catharines	Motors	John Allan	50
274	" 23...	John Campbell & Son	London	Carriages	Harry Johnstone..	..
275	May 2...	John Campbell & Son.	London	Carriages	Alex. Scott	..
276	" 11...	McClary Manf. Co.	London	Stoves, etc.	Fred Sawyer	26
277	" 11...	Steel & Iron Co.	Hamilton	Foundry	James Taylor	33
278	" 11...	Collingwood Shipbuilding Co..	Collingwood	Shipbuilding	Peter McMillan..	18
279	" 13...	Stevens-Hepner Co.	Port Elgin	Brooms	Bert Tupling	30
280	" 9...	Can. Carriage Co.	Brockville	Carriages	Fred Andrews..	55
281	" 15...	Bain Wagon Co.	Woodstock	Wagons	William Bryce...	22
282	" 15...	Steel & Iron Co.	Hamilton	Steel	G. Rosinberg....	30
283	" 3...	Can. Gen. Electric Co.	Peterborough	Electric works...	Wm. Maxwell...	27
284	" 5...	Can. Gen. Electric Co.	Peterborough	Electric	R. Gadois	15
285	" 4...	Can. Gen. Electric Co.	Peterborough	Electric	William Milburn.	24
286	" 6...	Kilgour Bros.	Toronto	Paper boxes	Esther Phillips..	18
287	" 13...	Rudd Paper Box Co.	Toronto	Paper boxes	M. Hathaway...	33
288	" 18...	King Radiator Co.	Toronto	Radiator	Bert Davis	..
289	" 17...	Hamilton Bridgeworks	Hamilton	Bridge works...	Lewis Hunter	..
290	" 18...	Frost & Wood	Smith's Falls	Agricultural impl.	Walter Gulley...	33
291	" 18...	Can. Carriage Co.	Brockville	Carriages	Thomas McCaslin	43
292	" 19...	John Bertram & Sons Co.	Dundas	Machine tools...	Fred Brown	40
293	" 23...	American Can Co.	Hamilton	Tin cans	M. Brodiniska..	17
294	" 19...	Massey-Harris Co.	Toronto	Farm Impl.	J. Garland	38
295	" 23...	Kemp Manf. Co.	Toronto	Enamelled wear.	Harry Whitney..	22
296	" 30...	Massey-Harris Co.	Toronto	Farm Impl.	A. D. Roberts...	15
297	" 23...	Telfer Manf. Co.	Toronto	Paper boxes	Annie Shea	19
298	" 21...	Steel & Iron Co.	Hamilton	Steel & iron	Thomas Ranelly.	28
299	" 17...	Massey-Harris Co. Ltd.	Toronto	Farm Impl.	W. Prout	60
300	" 21...	Polson Iron Works Co.	Toronto	Shipbuilders	A. McKeon	40
301	" 18...	Lawrence Bros Ltd.	Folger	Lumber	Robert Peters	..
302	" 25...	McLaughlin Carriage Co.	Oshawa	Carriages	David Moffatt...	48
303	" 26...	Bertram & Sons Co.	Dundas	Machine tools	Henry Robins...	45
304	" 16...	Can. Gen. Electric Co.	Peterborough	Electric works...	V. G. Saint	28
305	" 26...	Steel & Iron Co.	Hamilton	Steel & iron	A. Harrison	27
306	" 26...	Page-Hersey Iron & Tube Co..	Welland	Iron tubes	E. Shorney	27
307	" 19...	Page-Hersey Iron & Tube Co..	Guelph	Iron tubes	M. Amfrogio	38
308	" 28...	Massey-Harris Co.	Toronto	Farm Impl.	A. Robinson	30
309	" 30...	Massey-Harris Co.	Toronto	Farm Impl.	B. Finnie	65
310	" 20...	W. C. Edwards & Co.	Rockland	Lumber	Romeo Vian	16
311	June 4...	Pratt & Whitney Co.	Dundas	Taps, dies, etc.	Jos. McLaughlin	30
312	" 6...	John Bertram & Sons Co.	Dundas	Machine tools	Wm. Farquharson	26
313	" 4...	Polson Iron Works Co.	Toronto	Iron, etc.	G. Murrell	40
314	" 7...	McLaughlin Carriage Co.	Oshawa	Carriages	Robert Jones	20
315	" 7...	Gilbon Co.	Deseronto	Lumber	John Tait	55
316	" 7...	Joseph Simpson's Sons.	Toronto	Knitting mill	Bert Stevens	..
317	" 8...	Page-Hersey Iron Tube Co.	Guelph	Iron	P. Roberts	25
318	" 8...	Oxford Knitting Co.	Woodstock	Underwear	Charles Finlay...	..
319	" 8...	Stratford Manf. Co.	Stratford		A. Mettler	26
320	" 10...	McClary Manf. Co.	London	Stoves	Bert Abel	20
321	" 6...	Can. Cycle & Motor Co.	West Toronto	Motors	B. Adams	30
322	" 10...	Collingwood Shipbuilding Co..	Collingwood	Shipbuilding	Fred Jarret	19
323	" 6...	Massey-Harris Co.	Toronto	Farm Impl.	M. Mahoney	38
324	" 13...	Taylor Forbes Co.	Guelph	Gen. hardware	R. Sandford	..
325	" 11...	American Can Co.	Hamilton	Cans	Cecil Claringbowl	18

FOR THE YEAR 1910.

Particulars.	No.
Splinter from spool ran under first finger nail.	246
Leg cut and bruised; while shearing muck bar the bar fell on leg.	247
Foot burned; slipped into truck of iron.	248
Toe crushed; heavy casting fell on foot.	249
Hit by a small piece of wood from planer.	250
Loss of finger tip in drop press.	251
Top of finger taken off; slipped under blade of power shears.	252
Thumb off at first joint, left hand; while adjusting can on die tripped press.	253
Head cut; tools fell from staging on head while riveting.	254
Left hand off near wrist, while operating punch press.	255
Three fingers off while operating heading saw.	256
Finger crushed and had to be amputated.	257
Bruised; stood up in wagon under a shaft and was caught.	258
Two fingers cut; while shoving pipe through cross rolls caught between pipe and trough.	259
Jaw fractured and shoulder broken; barker flew in pieces.	260
Fingers slightly injured in gears while getting file out of box under gate.	261
Loss of three fingers on left hand while operating press.	262
Hand amputated; caught under drop hammer.	263
Thumb fractured; caught between stock in malleable finishing room.	264
Two fingers off; caught between sand drum and steel rollers.	265
Four fingers lost while operating jointer.	266
Thumb cut; hand came in contact with rip saw.	267
*Fell off log while crossing narrow strip and was drowned.	268
Nail torn off; jammed between two boxes.	269
End of thumb cut off and finger lacerated; hand slipped into buzz planer.	270
*While putting a water pipe over mixing machine was drawn into it and instantly killed.	271
Palm of hand torn; caught on band iron.	272
Skull fractured; fell from truck to street.	273
While putting up gears one fell striking leg.	274
Two fingers cut on rip saw.	275
First joint of first finger taken off; while putting tin in press machine came down on finger.	276
Eye burned; hot metal splashed into eye.	277
Hand crushed; while adjusting pulley of crane hoist moved against hand.	278
Thumb and two fingers cut on wood shaper.	279
Finger off at 1st joint; caught in planer.	280
Muscles of arm cut between wrist and elbow, while operating cross cut saw.	281
Head cut; eye injured; limbs bruised; fell between two cars while loading ingots.	282
Portion of index finger cut off; drill started up while hand was still on it.	283
Nail torn off; finger jammed under plunger of foot punch press.	284
Nail taken off little finger; caught between steady head and key way of shaft.	285
Top of third finger on right hand bruised while operating short tin machine.	286
Hand crushed; caught in press.	287
Leg fractured while driving team near plant.	288
*Head crushed; while riveting a brace on column was struck by crane—crushing it between column and lower carrier of crane.	289
Three fingers completely severed; one index finger at second joint; drop hammer caught hand between dies.	290
Three fingers taken off; came in contact with saw.	291
Foot bruised above toe near instep; crane slipped off shaft on foot while assembling machine.	292
Elbow bruised; fell over box.	293
Toe cut; let stave of rattle mill fall.	294
Hand crushed by drop hammer and three fingers had to be amputated.	295
Nail torn off index finger, right hand; caught in bolt painter.	296
End of second finger smashed in corner staving machine.	297
Foot burned; slipped while sprinkling sand in hot iron beds.	298
Chest and shoulders bruised; fell from lumber pile.	299
Eye bruised; while punching channels on small punch lever flew back.	300
Middle finger off at second joint; thumb and index finger hurt, on lathe bolting machine.	301
Hand lacerated; slab flew back from saw.	302
Two fingers torn and bruised; drawn between machine and stone while truing grindstones.	303
Palm of hand cut; phosphor bronze slipped from hand while being drilled.	304
Two toes smashed; steel ingots fell on foot.	305
Leg broken; clothes caught in shafting while oiling gears.	306
Finger crushed; while loading iron hand got between iron and truck.	307
Foot burned, by molten iron.	308
Knee injured; stumbled and fell.	309
*Drowned while working at foot of Jack ladder putting in logs.	310
Finger crushed at end; hand was drawn into gear on lathe.	311
Finger injured; while turning inside of cone pulley pattern; chisel was thrown against hand.	312
Fractured rib; fell through open deck scuttle.	313
Sides bruised; sleeve caught in a shaft coupling on sewing machine line shaft.	314
Leg broken and body bruised; while oiling machinery was wound around shaft.	315
Fell down elevator shaft from third floor.	316
Struck in eye; while testing pipe with water pressure the pipe split open.	317
Hand caught in gears of knitting machine.	318
Tops of three fingers cut off on rip saw.	319
Portion of middle finger taken off on cutting press; caught under press.	320
Flesh taken off hand while running surface grinder in tool room.	321
Leg bruised; while moving steel angles chain broke and angle struck knee.	322
Foot hurt; while loading manure spreader on truck it fell over.	323
Two fingers injured on circular saw.	324
Two fingers, right hand torn; machine started prematurely.	325

*Fatal.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person injured.	Age.
326	June 11...	William Davies Co.	Toronto	Pork packers	Fred Shaw	..
327	" 15...	Phillips Manf. Co.	Toronto	Mouldings	R. Hamilton	..
328	" 13...	Phillips Manf. Co.	Toronto	Mouldings	John Over	..
329	" 4...	Bay of Quinte Brick Works.	Belleville	Bricks	Robert Logan	..
330	" 10...	Provincial Steel Co.	Cobourg	Steel	J. Thorborn	38
331	" 14...	Can. Westinghouse Co.	Hamilton	Electric works	Harry Phinn	..
332	" 3...	Standard Silver Co.	Toronto	Silverware	Bert Carter	..
333	May 30...	Niagara Veneer & Basket Co.	Parry Sound	Baskets, etc.	J. Thornton	..
334	" 31...	Eugene Munsell Co.	Ottawa	Mica	F. Fraser	16
335	June 1...	Graham Nail Works.	Toronto	Wire staples, etc.	James Wallace	30
336	" 13...	Graham Nail Works.	Toronto	Wire staples, etc.	H. Cunliffe	25
337	" 10...	Harris Lithographing Co.	Toronto	Lithographing	Wm. Armstrong.	18
338	" 2...	Crown Gypsum Co.	Lythmore		Andrew Dennett.	24
339	" 1...	International Harvester Co.	Hamilton	Harvesters	Allan Duffie	20
340	" 3...	International Harvester Co.	Hamilton	Harvesters	John J. Young	32
341	" 3...	International Harvester Co.	Hamilton	Harvesters	M. Denison	32
342	" 17...	Steel & Iron Co.	Hamilton	Steel & iron	Fred Whitehead.	27
343	" 15...	Steel & Iron Co.	Hamilton	Steel & iron	J. Bannon	27
344	" 13...	Steel & Iron Co.	Hamilton	Steel & iron	No. 420	30
345	" 21...	John Bertram & Sons.	Dundas	Machine tools	William Hill	40
346	" 15...	Massey-Harris Co.	Toronto	Farm impl.	James Ball	21
347	" 13...	Gutta Percha & Rubber Co.	Toronto	Rubber goods	E. Gilbert	..
348	" 11...	Crossen Car Co.	Cobourg	Cars	James Markey	..
349	" 15...	Steel & Iron Co.	Hamilton	Steel & iron	P. Alexondro	44
350	" 17...	American Chicle Co.	Toronto	Gum	Robert Copland.	..
351	" 13...	Taylor Forbes	Guelph	Hardware	Frank O'Drosky.	..
352	" 14...	Massey-Harris Co.	Toronto	Farm impl.	J. Roberts	26
353	" 28...	Can. Pacific Ry. Co.	West Toronto	Car shops	Walter Hanige	28
354	" 17...	Massey-Harris Co.	Toronto	Farm impl.	J. Rasanen	25
355	" 10...	Oberholtzer Co.	Berlin	Boots & shoes	E. Greene	..
356	" 18...	Gillies Bros.	Braeside	Lumber	Emerson Twa	..
357	" 20...	Gillies Bros.	Braeside	Lumber	Alex. Romanick	..
358	" 20...	Steel & Iron Co.	Hamilton	Steel & iron	C. Smith	55
359	" 20...	Steel & Iron Co.	Hamilton	Steel & iron	E. L. Williams	37
360	" 21...	Steel & Iron Co.	Hamilton	Steel & iron	Tony Cususki	22
361	" 21...	Steel & Iron Co.	Hamilton	Steel & iron	G. Bosa	35
362	" 22...	American Cyanamid Co.	Niagara Falls	Fertilizer	George Farley	58
363	" 25...	Steel & Iron Co.	Hamilton	Steel & iron	Perini Eurico	25
364	" 9...	Verity Plow Co.	Brantford	Plows	Robert Lake	38
365	" 18...	Page-Hersey Iron Tube Co.	Guelph	Iron tubes	F. Fazzare	16
366	" 27...	McClary Manf. Co.	London	Stoves	W. Long	27
367	" 28...	McClary Manf. Co.	London	Stoves	Thomas Hartnel.	50
368	" 23...	Stauntons Limited	Toronto	Wall paper	Cyril Hendy	20
369	" 28...	American Can Co.	Hamilton	Tin cans	George Cook	19
370	" 21...	American Can Co.	Hamilton	Tin cans	Harry Ginsburg.	36
371	" 17...	Can. Pacific Ry. Co.	West Toronto	Car shops	William H. Curtis	26
372	" 22...	Can. Pacific Ry. Co.	West Toronto	Car shops	Wm. Geo. Kimber	38
373	" 22...	George Pattison & Co.	Preston	Woollens	George Farley	45
374	" 23...	Joseph Simpson Sons	Toronto	Underwear	Maggie McMaster	15
375	" 28...	Frost & Wood Co.	Smith's Falls	Agricultural impl.	George Youngeliss	17
376	" 28...	Frost & Wood Co.	Smith's Falls	Agricultural impl.	James Dooher	29
377	" 28...	Steel & Iron Co.	Hamilton	Steel & iron	Joseph Pettrel	19
378	" 30...	Collingwood Shipbuilding Co.	Collingwood	Shipbuilding	George McEwan.	40
379	" 21...	Can. Gen. Electric Co.	Peterborough	Electric works	G. Hawley	19
380	" 20...	Can. Gen. Electric Co.	Peterborough	Electric works	R. Pilling	19
381	" 22...	Goderich Organ Co.	Goderich	Organs	Lewis Elliott	..
382	" 22...	Goderich Organ Co.	Goderich	Organs	Wilfred Loiselle.	..
383	" 29...	Hanover Specialty Co.	Hanover	Kitchen cabinets.	V. Russmere	..
384	July 4...	Bertram & Sons Co.	Dundas	Tools	James Howard	60
385	" 6...	Can. Locomotive Co.	Kingston	Car shops	James Allely	..
386	" 7...	Preston Furn. Co.	Preston	Furniture	Albert Roth	21
387	" 11...	Can. Carriage Co.	Brockville	Carriages	John Coskeran	52
388	" 6...	John Morrow Screw Co.	Ingersoll	Screws	James Knapp	24
389	" 30...	Can. Tungsten Lamp Co.	Hamilton	Lanterns & lamps	George Weller	..
390	" 17...	Ont. Iron & Steel Co.	Welland	Steel & iron	H. Speakman	40
391	" 7...	Provincial Steel Co.	Cobourg	Steel	Charles Jones	50
392	" 6...	Massey-Harris Co.	Brantford	Farm impl.	C. Wright	50
393	" 12...	Massey-Harris Co.	Brantford	Farm impl.	Graham Moore	25
394	" 11...	D. S. Perrin & Co.	London	Confectionery	Orville Booth	..
395	" 9...	Can. Spool & Bobbin Co.	Walkerton	Spools & bobbins	Stanley Ferguson	17
396	" 8...	Graphic Press	Toronto	Printing	Mary Smith	..
397	" 11...	National Table Co.	Owen Sound	Tables	Hugh Anderson	15
398	" 14...	Bell Piano & Organ Co.	Guelph	Organs, etc.	Edward Keegan	70
399	" 13...	Dodson Iron Works Co.	Toronto	Iron	James Bland	32
400	" 11...	Taylor Forbes Co.	Guelph	Gen. hardware	C. Swendlehurst	..
401	" 13...	John Bertram & Sons Co.	Dundas	Tools	James Kyle	40
402	" 11...	Algoma Steel Co. Ltd.	Sault Ste. Marie	Steel	Giovanatto Ugo	..
403	" 12...	Christie Brown & Co.	Toronto	Biscuits	Ovila Toutand	18
404	" 6...	McAuliffe, W. H.	Ottawa	Lumber	Mark O'Neil	21
405	" 15...	Can. Cement Co.	Humberstone	Cement	Frank Clark	43
406	" 16...	Imperial Cotton Co.	Hamilton	Twine, etc.	Henry Wilson	..
407	" 19...	Bertram & Sons Co.	Dundas	Machine tools	James Graham	48
408	" 12...	Dom. Paper Box Co.	Toronto	Boxes	Wilfred Helen	..

FOR THE YEAR 1910.

Particulars.	No.
Face cut; scantling flew back from circular saw.	326
Splinter in arm; piece of lumber flew back from saw.	327
Thumb lacerated; caught in gear while cleaning machine.	328
Head caught between sweep and corner post.	329
Chip flew from casting into eye.	330
Two fingers cut off at second joint on planer.	331
Leg broken and hand crushed; caught between electric freight elevator and beam.	332
Three fingers partly taken off by veneer saw.	333
Two fingers taken off on power press.	334
Hand cut; struck by revolving wire in straightening machine.	335
Finger crushed in nail machine.	336
Hand crushed and had to be amputated; caught in cutter and creaser machine.	337
*Caught in shaft; between coller and box while crossing from bin to beam.	338
Forefinger fractured while operating boring machine.	339
Thumb lacerated; also two fingers; while operating circular saw.	340
Index and second finger amputated while working on trip hammer.	341
Arm burned and cut by steel coming through rolls.	342
Chest and arms scalded by steam from blower.	343
Foot bruised; piece of slag rolled off truck.	344
Head gashed; struck against piece of machinery swinging against crane.	345
Foot bruised; let binder table fall.	346
Artery in hand severed; accidentally drew hand across knife used for cutting strings.	347
Toe jammed; let crank fall on foot.	348
Internally injured and arm bruised; struck by box car which was being shunted.	349
Hand and arm lacerated; caught in machine while cleaning roller.	350
Face and head bruised; thrown off wagon and fell on head.	351
Hand burned by molten iron.	352
Leg and shoulder bruised; body bolster of car fell on him.	353
Legs bruised; iron fell off truck.	354
Nail taken off finger and thumb; pinched while putting soles through roller.	355
Elbow dislocated; fell from sorting table to track.	356
Scalp wound and leg injured; fell off a pile of timber.	357
Heel injured; timber rolled on foot.	358
Hand cut; while driving bolt in slag box hand slipped between bolt and piece of slag.	359
Hand smashed; caught between guard of shear and rail.	360
Toe crushed; iron cinder check fell on foot.	361
Leg broken; fell off pile of steel cans and one rolled on leg.	362
Right leg and left foot torn; while boarding engine slipped and was dragged along ground.	363
Arm cut; caught in gear of rumbler.	364
Chest and arm burned; struck with pipe while leaving rollers.	365
Body scalded by steam from boiler.	366
Deep wound over artery on right wrist by piece of wood thrown from rip saw.	367
Hand cut by blade of paper knife.	368
Thumb crushed; caught under punch.	369
Foot bruised; run over by loaded truck.	370
Toe broken; spring hammer dropped on foot.	371
Shoulder bruised; while cutting rivets fell off tender across breast plate.	372
Back of hand lacerated and flesh torn off two fingers; caught in fulling mill.	373
Head touched switch board and received shock.	374
Foot injured; stepped on nail.	375
Cut between knuckles; while operating drop hammer casting broke and piece struck hand.	376
Finger crushed; while unloading ingots one fell on finger.	377
Eye injured; while rivetting a piece of steel struck eye.	378
Nail cut in two on third finger; taking measurements while machine was in motion.	379
Nail bruised; recoil of spring in lathe struck thumb.	380
Front tooth broken; struck by bit from boring machine.	381
End pinched off finger caught between feed roll of glue jointer and board.	382
Struck in stomach by piece of wood.	383
Toes of left foot jammed; steel bar rolled on it.	384
Leg broken, by piece of boiler plate falling on it.	385
Two fingers cut on saw.	386
Toe severed; wagon body fell on foot.	387
Index finger taken off on punch press.	388
Finger injured while operating power press; die came down on finger.	389
Struck on breast; while pulling sand box from foundry by crane chain flew off box.	390
Toe bruised; piece of rail rolled on foot.	391
Slipped and caught thumb between emery wheel and rest.	392
Two fingers cut; finger was drawn into buzz planer knives.	393
Hand crushed; caught in rollers.	394
End of thumb cut off while operating buzz planer; finger was drawn into knives.	395
Hand injured; caught in platen of printing press.	396
Wrist and thumb cut; caught in jointer.	397
Point cut off finger right hand on rip saw.	398
Back bruised and strained; plank of scaffold broke and he fell across block.	399
Leg cut; cap came off water mill.	400
Instep bruised; man drill jarred from platform of lathe and dropped on foot.	401
*Killed while making a coupling.	402
Left third finger severed and tip taken off fourth; caught in biscuit cutting machine.	403
End of one finger cut off and two badly cut on rip saw.	404
*Legs cut; jumped from moving car and fell under wheel.	405
Arm and shoulder sprained; slipped on greasy floor.	406
Ankle sprained; fell from ladder.	407
Two fingers crushed in block of ending machine.	408

*Fatal.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person injured.	Age.
409	July 15...	Dom. Paper Box Co.	Toronto	Boxes	Louis Coffin	..
410	" 7...	Can. Gen. Electric Co.	Peterborough	Electric works	E. Simmons	23
411	" 13...	Can. Gen. Electric Co.	Peterborough	Electric works	C. Goodfellow	17
412	" 12...	Can. Gen. Electric Co.	Peterborough	Electric works	B. H. Wakefield.	34
413	" 12...	Can. Gen. Electric Co.	Peterboruugh	Electric works	A. Herbert	22
414	" 12...	Massey-Harris Co.	Toronto	Farm impl.	J. Smith	..
415	" 13...	Massey-Harris Co.	Toronto	Farm impl.	J. Vahey	..
416	" 15...	Ont. Iron & Steel Co.	Welland	Steel & iron	Benoth Shapler	39
417	" 15...	Ont. Iron & Steel Co.	Welland	Steel & iron	Jack Mikohon	..
418	" 16...	Ont. Iron & Steel Co.	Welland	Steel & iron	C. Coshen	30
419	" 19...	Ont. Iron & Steel Co.	Welland	Steel & iron	J. Maune	38
420	" 12...	Steel & Iron Co.	Hamilton	Steel & iron	Laborer	..
421	" 18...	W. J. Gage & Co.	Toronto	Stationers	A. Smith	..
422	" 19...	D. S. Perrin & Co.	London	Biscuits	Luigi Bolucce	..
423	" 12...	Thomas Bros.	St. Thomas	Brushes	Gordon Dalton	26
424	" 15...	S. Knechtel Woodturning Co.	Southampton	Moulding, etc.	Elwin Byers	14
425	" 6...	McLean Lumber Co.	Windsor	Lumber	Madge Cassel	18
426	" 13...	Adams Wagon Co.	Brantford	Carriages	J. H. Cowperwaite	22
427	" 11...	Collingwood Shipbuilding Co.	Collingwood	Shipbuilding	S. Moore	55
428	" 12...	Jacob Kaufman	Berlin	Lumber	Fred Miller	..
429	" 18...	McClary Manf. Co.	London	Biscuits	S. Lukichevich	30
430	" 19...	John Bertram & Sons Co.	Dundas	Machine tools	Ben. Dickinson	60
431	" 6...	Standard Chemical Co.	Longford Mills	Chemicals	David Sharpe	26
432	" 6...	Standard Chemical Co.	Longford Mills	Chemicals	John Smith	24
433	" 6...	Standard Chemical Co.	Longford Mills	Chemicals	John Regan	24
434	" 6...	Standard Chemical Co.	Longford Mills	Chemicals	William Heslin	23
435	" 6...	Standard Chemical Co.	Longford Mills	Chemicals	Geo. B. Cobrough	32
436	" 6...	Standard Chemical Co.	Longford Mills	Chemicals	Lewis McNaught	40
437	" 6...	Standard Chemical Co.	Longford Mills	Chemicals	Edwin Smith	26
438	" 6...	Standard Chemical Co.	Longford Mills	Chemicals	John McCauley	39
439	" 6...	Standard Chemical Co.	Longford Mills	Chemicals	Rev. W. H. Smith	28
440						
441	" 22...	Can. Tungsten Lamp Co.	Hamilton	Lamps	H. Pearson	26
442	" 22...	Taylor Forbes Co.	Guelph	Hardware	P. Pasterino	..
443	" 15...	Toronto Bedding Co.	Toronto	Beds & mattress	Pouto Crist	24
444	" 10...	American Cyanamid Co.	Niagara Falls		Percy Lee	17
445	" 20...	Gendron Manf. Co.	Toronto	Vehicles	William Pierce	35
446	" 11...	Can. Cloak Co.	Toronto		Harold Spratt	..
447	" 24...	Ont. Iron & Steel Co.	Welland	Steel & iron	J. Borblac	18
448	" 20...	Macdonald Manf. Co.	Toronto	Tin lithographing	Lucy Jamieson	18
449	" 22...	Macdonald Manf. Co.	Toronto	Tin lithographing	John Lable	17
450	" 26...	Can. Tungsten Lamp Co.	Hamilton	Lamps	Alleda Halstead	15
451	" 25...	McClary Manf. Co.	London	Biscuits	B. Dempsey	20
452	" 26...	Stratford Manf. Co.	Stratford	Ladders	A. Burns	36
453	" 21...	Can. Gen. Electric Co.	Peterborough	Electric	G. Langton	30
454	" 16...	Can. Gen. Electric Co.	Peterborough	Electric	O. Hamilton	..
455	" 14...	Massey-Harris Co.	Brantford	Farm impl.	Morris Mayes	40
456	" 29...	Brunswick-Balke Co.	Toronto	Fixtures (table)	— Wenglewich	..
457	August 1...	John Watson Manf. Co.	Ayr	Farm impl.	William Nicol	..
458	July 28...	McClary Manf. Co.	London	Confectioner	Earle Dennison	23
459	" 28...	McClary Manf. Co.	London	Confectioner	John Lightfoot	18
460	" 22...	Massey-Harris Co.	Brantford	Farm impl.	John Sewangski	35
461	" 13...	Massey-Harris Co.	Brantford	Farm impl.	Richard Hart	23
462	" 9...	Steel & Iron Co.	Hamilton	Steel & iron	John Hargood	23
463	" 5...	Steel & Iron Co.	Hamilton	Steel & iron	Joseph Kroll	21
464	August 2...	Can. Westinghouse Co.	Hamilton	Electric works	F. Shipton	..
465	July 25...	Massey-Harris Co.	Toronto	Farm impl.	E. Walker	..
466	" 29...	McClary Manf. Co.	London	Stoves	John Crockett	45
467	" 26...	Ont. Iron & Steel Co.	Welland	Steel billets	Andy Tony	30
468	August 3...	Can. Westinghouse Co.	Hamilton	Electric	P. Howieson	..
469	July 12...	Park, Davies & Co.	Walkerville	Drugs	Clarence Gubb	17
470	August 4...	Provincial Steel Co.	Cobourg	Steel	Arthur Ovens	40
471	" 4...	Can. Gen. Electric	Peterborough	Electric works	A. Gash	26
472	July 25...	Massey-Harris Co.	Toronto	Farm impl.	George Freeman	18
473	August 4...	Massey-Harris Co.	Toronto	Farm impl.	B. Virgilio	30
474	July 31...	Massey-Harris Co.	Toronto	Farm impl.	A. Sanger	35
475	" 25...	Massey-Harris Co.	Toronto	Farm impl.	R. Pugle	22
476	August 9...	W. J. Gage & Co. Ltd.	Toronto	Stationers	Helen Perks	..
477	" 8...	Steel & Iron Co.	Hamilton	Steel & iron	Guiseppi Curti	24
478	" 4...	McClary Manf. Co.	London	Confectionery	John Hughes	21
479	" 4...	Can. Col. Cotton Mills.	Cornwall	Cotton	Antoine Derosin	15
480	" 5...	Gillies Bros.	Braeside	Lumber	Robert Brunette	14
481	" 6...	John Bertram & Son.	Dundas	Machine tools	A. Garabedian	40
482	" 6...	John Bertram & Son.	Dundas	Machine tools	Harry Garabedian	35
483	" 6...	John Bertram & Son.	Dundas	Machine tools	George Manning	54
484	" 10...	Can. Westinghouse Co.	Hamilton		James L. Dixon	..
485	" 11...	John Bertram & Son.	Dundas	Machine tools	Henry Wix	40
486	" 15...	Goldie & McCulloch Co.	Galt	Machinery	J Henderson	35
487	" 15...	Can. Colored Cotton Mills.	Cornwall	Cotton	Henry Denesha	20
488	" 15...	Brantford Carpet Co.	Peterborough	Carpets & rugs	Jack Dale	..
489	" 13...	Trent Valley Woollen Manf. Co	Campbellford	Woollens	M. Abernathy	15
490	" 13...	Collingwood Shipbuilding Co.	Collingwood	Shipbuilding	A. Scott	40

FOR THE YEAR 1910.

Particulars.	No.
Top of finger split open on bolts dieing and creasing press.	409
Hand cut; struck against pile of sheet iron on floor.	410
Finger jammed and nail torn off; caught in strip dog on planer.	411
Hand cut; struck against pile of sheet iron on floor.	412
Finger cut; while taking drill out of cluck of machine; drill twisted.	413
Hand bruised; caught in cable of hoist.	414
Hand slipped on jointer and two finger tips cut.	415
Foot bruised; bottom of knuckle flask fell on foot.	416
Tripped and fell over scrap pile; and nail ran into leg.	417
Foot bruised; bricks fell from pile.	418
While shearing billets a piece fell on foot bruising it.	419
Arm cut and torn; caught between two pieces of scrap rail.	420
Wrist broken; crushed between two trucks.	421
Arm and leg bruised in elevator.	422
Fingers cut on bead turning machine.	423
Wrist dislocated and crushed; caught in rolls of sander.	424
Fingers crushed; caught in plate between car and platform.	425
Cords of wrist injured; came in contact with sand belt.	426
Hand bruised; wheels of car hoist passed over it.	427
*Board flew back from rip saw striking abdomen.	428
Head cut and bruised; "roll over" part of moulding machine fell on head.	429
Eye bruised; struck by chipping from casting.	430
Back of neck burned; explosion.	431
Face and arms burned; explosion.	432
Face and arms burned; explosion.	433
Head, arms and shoulders burned; explosion.	434
Head and arms severely burned; explosion.	435
*Fatally burned; explosion.	436
Head and arms severely burned; explosion.	437
*Fatally burned; explosion.	438
Face, arms and neck burned; explosion.	439
	440
Finger taken off at second joint; while operating power press die came down.	441
Head smashed; knee broken and sustained other injuries; caught in revolving shaft.	442
Arm fractured; caught in belt and carried around shafting.	443
Two fingers burned; in throwing circuit breakers on electric crane took hold of copper parts.	444
Finger cut in woodworking department.	445
Fingers cut off by electric cutter.	446
Ankle crushed; while riding on engine car jumped track, pinning foot against bumper of engine.	447
Tip taken off thumb, while operating punch press.	448
*Head crushed in elevator.	449
Lost portion of finger; caught under foot press.	450
Finger cut on drop press.	451
Top joint middle finger taken off on shaper.	452
Two fingers jammed while operating punch press.	453
Testicles cut; waistband caught in line shafting while putting belt on pulley.	454
Foot scalded; stepped into a pail of boiling water.	455
Foot injured; section of bowling alley fell on foot.	456
Thumb taken off on band saw.	457
Two fingers taken off while shoving in blanks out of dies.	458
Finger amputated; used finger to push roofing cap off die.	459
Abrasion of ankle; crate fell on foot.	460
Eye injured; struck by end of shaft.	461
Leg crushed; while coupling cars was caught between buggies used to carry scrap.	462
Chest crushed and ribs broken; crashed against coal car by steel bar.	463
Fingers lacerated while operating milling machine; caught between cutter and vise.	464
Instep bruised; fence of saw table fell on foot.	465
Finger nail torn off on punching machine.	466
Two fingers crushed between chain and tunion of flask while putting on chain.	467
Two fingers cut off on buzz planer.	468
Toe dislocated; while operating freight elevator foot was caught and bent upwards.	469
Muscle of foot torn while standing on runway of exposed gear.	470
Hand cut across knuckle; knocked against pile of sheet iron.	471
Foot bruised; caught in cogs of machine in saw dept.	472
Foot bruised; piece of pig iron fell on foot.	473
Packing case fell on foot bruising great toe.	474
Heel burned by molten metal.	475
Finger cut while operating machine in box department.	476
Leg crushed while coupling muck mill rolls.	477
Flesh wound on hand while operating punching machine.	478
Lost part of three fingers; hand caught between water mangles.	479
Hand cut on saw.	480
Legs, arms, and feet badly burnt by molten metal.	481
Hip burned by molten metal.	482
Back burned by molten iron.	483
Two fingers cut off at first joint while operating square shearing machine.	484
Leg bruised; wheel barrow slewed; bar from barrow fell across leg.	485
Leg bruised and arm broken; a pin worked loose in travelling crane.	486
Three fingers bruised while attempting to pick foreign matter off machine while in motion.	487
Eye cut; spring in loom broke.	488
Finger amputated; caught in gears of mule.	489
Muscles of arm bruised; arm was crushed against stanchion of crane truck.	490

*Fatal.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person injured.	Age.
491	August 13...	Standard Silver Co.	Toronto	Electro plates...	Park T. Sowden.	..
492	" 13...	Steel & Iron Co.	Hamilton	Steel goods	Ansoino Ricci ...	35
493	" 13...	Trenton Cooperage Mills.	Trenton	Hoops & staves.	S. Bassett	..
494	" 18...	D. S. Perrin Co.	London	Biscuits, etc....	Russell Cook ...	..
495	" 12...	Can. Gen. Electric Co.	Peterborough ...	Electric	George Parent..	42
496	" 15...	Imperial Cotton Co.	Hamilton	Twine	Dersa Meyers...	..
497	" 25...	Robert Watson	Toronto	Confectionery ...	Wilfred Boyce...	14
498	" 25...	Robert Watson	Toronto	Confectionery ...	Ralph Simpson..	16
499	March 21...	Aluminum & Crown Stopper Co.	Toronto	Corks	May Dempster...	17
500	August 13...	Page-Hersey Iron Co.	Guelph	Iron tubes	A. Cook	23
501	" 12...	Massey-Harris Co.	Toronto	Machinery	A. Winters	48
502	" 19...	Can. Bolt & Nut Co.	Toronto	Bolts, nuts, etc..	Edward Hughes.	..
503	" 17...	Can. Gen. Electric Co.	Peterborough ...	Electric goods...	W. Foulger	31
504	" 12...	Massey-Harris Co.	Toronto	Machinery	Lehto	25
505	" 17...	North American Bent Chair Co.	Owen Sound	Chairs	Spilker	..
506	" 18...	Lawrence Bros.	Folger Station...	Lumber mill	Wm. Smith	..
507	" 17...	Cockshutt Plow Co.	Brantford	Implements	Leonard Elliott..	16
508	" 23...	Verity Plow Co.	Brantford	Machinery	Jas. Maddock ...	45
509	" 20...	T. H. Taylor Co.	Chatham	Millers	John A Howe...	38
510	" 19...	McClary Manf. Co.	London	Stoves	Henry Doan ...	67
511	" 19...	Keewatin Lumber Co.	Keewatin	Lumber	Arthur West....	17
512	" 20...	James Smart Co.	Brockville	Hardware	Sam Godfrey ...	30
513	" 15...	James Smart Co.	Brockville	Hardware	Norris Westlake.	46
514	" 27...	Goderich Organ Co.	Goderich	Organs	Wm. Tichbourne.	..
515	" 26...	John Bertram Co.	Dundas	Tools	John Clark	35
516	" 8...	American Can Co.	Hamilton	Cans	Wm. Reihl	26
517	" 9...	Wm. Buck Stove Co.	Brantford	Stoves	Sana. Humenick.	40
518	" 27...	Dominion Bedding Co.	Hamilton	Belting	Mabel Mudder ..	..
519	June 27...	Pt. Credit Brick Co.	Toronto	Brickyards	A. Parsons	..
520	August 27...	Pt. Credit Brick Co.	Toronto	Brickyards	H. Fowler	..
521	" 30...	Pt. Credit Brick Co.	Toronto	Brickyards	G. Mandini	..
522	" 30...	Page-Hersey Iron & Tube Co.	Toronto	Piping	M. Davitt	..
523	" 30...	Kemp Mfg. Co.	Toronto	Copper wares ...	Jas. W. Heighton	34
524	" 23...	Canadian General Electric.	Peterborough ...	Electric goods...	J. Runnett....	38
525	" 23...	Massey-Harris Co.	Toronto	Machinery	J. Gill	17
526	" 17...	Canadian General Electric.	Peterborough ...	Electric goods...	W. Folger	..
527	" 20...	Massey-Harris Co.	Toronto	Machinery	J. Ashford	60
528	" 26...	Kingston Laundry	Kingston	Laundry	Annie Nelson ...	..
529	" 11...	Page-Hersey & Iron Co.	Welland	Tubes, etc.	Mike Bellage ...	35
530	" 29...	Page-Hersey & Iron Co.	Welland	Tubes, etc.	Frank Sangs ...	30
531	" 27...	Massey-Harris Co.	Branford	Machinery	Clarence Johnson	20
532	Sept. 8...	Provincial Steel Co.	Cobourg	Steel, etc.	Pat Gordon	22
533	" 6...	Gillies Bros.	Braeside	Lumber	E. Henrickson...	24
534	July 16...	Mooney Biscuit Co.	Stratford	Biscuits, etc. ...	Thos. Coughlin.	16
535	" 29...	Mooney Biscuit Co.	Stratford	Biscuits, etc. ...	R. McClagherty.	17
536	Sept. 1...	Mooney Biscuit Co.	Stratford	Biscuits, etc. ...	Robt. Smale....	..
537	August 29...	Canadian General Electric.	Peterborough ...	Electric	H. Lewis	..
538	Sept. 18...	Can. Pacific Ry. Co.	West Toronto ...	Car shops	Wm. J. Moore...	27
539	June 30...	Colonial Lumber Co.	Pembroke	Lumber	Wm. Kenny	45
540	August 30...	Massey-Harris Co.	Toronto	Machinery	H. Stevens	24
541	Sept. 3...	Massey-Harris Co.	Toronto	Machinery	E. Giles	22
542	August 24...	Ont. Iron and Steel Co.	Toronto	Castings	Tom Norvic	30
543	Sept. 2...	Stephens-Hepner Co.	Pt. Elgin	Brushes	Carl Prosser....	20
544	August 24...	King & Co.	Pt. Arthur	Elevator	Wm. Smith	..
545	Sept. 21...	Eugene Munsell & Co.	Ottawa	Mica	G. Taylor	20
546	" 20...	Beatty & Sons, Ltd.	Welland	Dredges	Dan Gillan	35
547	" 15...	Jones Bros. Co.	Dundas	Interior fitting..	Ellwood Irwin ..	18
548	" 10...	International Harvester Co.	Hamilton	Machinery	Chas. Merritt ...	30
549	" 15...	Hamilton Steel & Iron.	Hamilton	Iron	C. Gillan	35
550	" 17...	Hamilton Steel & Iron.	Hamilton	Iron	No. 419	19
551	" 16...	Hamilton Steel & Iron Co.	Hamilton	Iron	No. 690	35
552	" 15...	Massey-Harris Co.	Brantford	Implements	Wm. Smart	56
553	" 16...	Bertram & Sons Co.	Dundas	Tools	Edward Leslie..	21
554	" 27...	Krug Bros.	Chesley	Furniture	Thos. Tickwood..	..
555	" 9...	Canadian General Electric.	Peterborough ...	Electric	B. Susie	23
556	" 22...	W. J. Gage Co.	Toronto	Stationery	Jennie Williams.	..
557	" 16...	Ottawa Free Press Co.	Ottawa	Publishers	— Wilson	11
558	" 16...	Massey-Harris Co.	Brantford	Machinery	Ed. Van Camp..	55
559	" 16...	McCormick Mfg. Co.	London	Biscuits, etc....	Arthur Handly..	..
560	" 19...	A. T. Reid Co.	Toronto	Neckwear	Lillian Soper....	16
561	" 27...	Firstbrook Box Co.	Toronto	Box	Geo. McChesney.	27
562	" 1...	W. H. McAuliffe.	Ottawa	Lumber	John Horan	16
563	" 23...	Adams Wagon Co.	Brantford	Wagons	Jas. Smiley	45
564	" 27...	Simcoe Wool Stock Co.	Simcoe	Woollens	Henry Pritchard..	..
565	" 9...	Alpha Chemical Co.	Berlin	Chemical Co....	Rich. Thompson.	49
566	" 26...	John B. Smith & Sons.	Toronto	Packing cases ..	Alex. Rupiniski..	..
567	" 21...	Kemp Mfg. Co.	Toronto	Tinware	Arthur Reeder..	15
568	" 12...	Can. Colored Cotton Mills Co.	Cornwall	Cotton	Antonio Giavetto	26
569	August 17...	Graham Nail Works	Toronto	Nails,-etc.	Louis Sheldrick.	25
570	Sept. 28...	L. McBrine Co.	Berlin	Trunks, etc.	Wm. Wilson	..
571	" 27...	Keewatin Lumber Co.	Keewatin	Lumber	Emil Erichson...	15
572	" 26...	M. Beatty & Sons.	Welland	Dredges, etc. ...	Jacob Ryan	18

FOR THE YEAR 1910.

Particulars.	No.
Three fingers punched while demonstrating use of power punch.	491
Foot bruised; steel rail rolled on foot.	492
Ends of three fingers cut off while culling staves.	493
Hand caught in candy roller; one finger had to be amputated.	494
First finger cut on revolving emery wheel.	495
Finger split; caught in drawing frame.	496
Hand scalded.	497
Finger sliced to first joint on cutting machine.	498
Finger amputated while operating stamping press.	499
Finger broken; a dolly bar slipped while driving, jamming finger between bar and sledge.	500
Toe broken; steel rods fell on foot.	501
Hand crushed to wrist and had to be amputated; while removing dies placed foot on treadle and hammer dropped.	502
Thumb amputated at first joint; while removing work from press put foot on trip.	503
Spilled molten iron and burned left foot.	504
Three fingers cut off in buzz planer.	505
*While operating knotting saw a slab flew back and struck him in intestines and fatally injured him.	506
Leg and arm injured; caught in elevator.	507
Probable loss of right hand; taking malleables from drop hammer without using tongs.	508
Fell; cut head and sprained shoulder.	509
Bruised top of right eye; fell off car.	510
Fingers and thumb on left hand severed while starting buzz planer.	511
Upset ladle of molten metal and set fire to clothing; body badly burnt.	512
Thumb badly lacerated on rip saw.	513
Cut finger on rip saw.	514
Arm squeezed in engine lathe.	515
Cut palm of hand on tin plate.	516
Broke right arm; cable broke while ascending hoist.	517
Thumb bruised in feed rolls.	518
Broke leg; fell into hole where boards loosely covered it.	519
Small car ran off track badly crushed leg.	520
Back and hip bruised; struck with a shale box.	521
Right leg broken; foot slipped between gear and frame.	522
Fingers crushed by Crosby press.	523
Fractured third finger and lacerated back of left hand.	524
Knife cut index finger.	525
Thumb amputated; caught on press.	526
Slipped on sheet iron and hurt back.	527
Burnt hand in mangle.	528
Water; 600 lbs. pressure knocked head against wall and caused concussion of the brain.	529
Toe smashed; pipe rolled off roller on foot.	530
Hit by a piece of board rebounding from rip saw.	531
Cut over eye; end of tongs struck head while pulling rail out of furnace.	532
Two fingers severed while cleaning edger saw.	533
Four fingers of right hand taken off in candy roll machine.	534
Fingers injured on stayer machine.	535
Two fingers injured.	536
Shaken up; box rails fell while being listed by crane.	537
Beam fell on foot and badly crushed it.	538
Eye badly cut (lost sight); a knot struck him flying from slash saw.	539
Bruised hand between work and punch press.	540
Lost three fingers; hand caught in cogs.	541
Broke forefinger; caught between chain and car.	542
Half an inch taken off finger while operating brush trimming machine.	543
*Clothing caught on friction shaft; body found jammed in tripper.	544
Three fingers taken off on power press.	545
*Plate fell on him.	546
Left thumb and part of two fingers off while operating twin saw.	547
Index finger amputated; caught in press.	548
Toe cut; mould fell on foot.	549
Finger lacerated, while adjusting hooks in bale of pig iron.	550
Foot and ankle sprained; fell between car and mill.	551
Two fingers broken; one cut caught under drop hammer.	552
Instep bruised; casting fell on foot.	553
Lost hand; injured on rip saw.	554
Finger injured on trip press.	555
Flesh torn on back of hand, on sewing machines.	556
Leg broken and other injuries; caught between hoist and sill of elevator.	557
Severed three fingers on buzz planer.	558
Right leg injured; caught between elevator floor and wall.	559
Fingers crushed in ruching machine.	560
Nailing machine caused jagged cut on back of wrist.	561
Cut finger on band saw.	562
Boards from shaper severely bruised ribs.	563
Fell from shoddy machine; injured right leg.	564
*Fire caused pneumonia; died.	565
*Found dead in shaving chutes; cause unknown.	566
Elevator caused compound fracture of right leg.	567
Flesh wound on lower part of right side, caused by pulley on picker.	568
Emery wheel broke; injured head and eye.	569
Fingers slightly cut on saw.	570
Two toes broken; caught foot on chain.	571
Injured hand on band saw.	572

*Fatal.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person injured.	Age.
573	Sept. 14...	Ollman Bros.	Hamilton	Brick	Thos. Telfer	26
574	" 6...	Canadian Coating Mills	Georgetown	Paper, etc.	Chas. Watson	..
575	" 23...	Dominion Paper Box Co.	Toronto	Boxes, etc.	Margaret Brown	..
576	" 30...	London Machine Tool Co.	Hamilton	Tools	J. Jewer	..
577	" 17...	Bell Furniture Co.	Southampton	Furniture	Wm. Longimer	..
578	October 3...	Brantford Carriage Co.	Brantford	Carriages	Milton Kenny	..
579	Sept. 27...	Brantford Carriage Co.	Brantford	Carriages	Roderick McKay	..
580	" 29...	Thomas Bros.	St. Thomas	Brushes	F. Brown	15
581	" 13...	Adams Wagon Co.	Brantford	Wagons	Wm. Plant	17
582	October 1...	Imperial Cotton Co.	Hamilton	Cotton duck	Maggie Wallace	..
583	Sept. 21...	International Harvester Co.	Hamilton	Machinery	W. Whitehorn	30
584	" 23...	International Harvester Co.	Hamilton	Machinery	Adam Mostacio	19
585	" 29...	Wm. Buck Stove Co.	Brantford	Furnaces	Frank Oswald	37
586	" 19...	Wm. Buck Stove Co.	Brantford	Furnaces	Jas. Bruce	40
587	" 22...	Scheerholtz Furn. Co.	New Hamburg	Furniture	Maurice Daniels	..
588	" 28...	Wm. Neilson Ltd.	Toronto	Ice cream	Nellie Jordan	31
589	October 3...	Massey-Harris Co.	Toronto	Machinery	J. Lanchester	36
590	Sept. 26...	Massey-Harris Co.	Toronto	Machinery	Victor Head	21
591	" 29...	Massey-Harris Co.	Toronto	Machinery	A. Shaw	25
592	October 4...	John H. Hall & Sons	Brantford	Machines	P. Kinglet	..
593	" 22...	Hamilton Steel & Iron Co.	Hamilton	Steel, etc.	L. Benney	47
594	" 7...	J. B. Armstrong Co.	Guelph	Carriages	Clements Paas	..
595	" 20...	Can. Gen. Electric Co.	Peterborough	Elec. works	B. Wilson	21
596	" 19...	Can. Gen. Electric Co.	Peterborough	Elec. works	E. Barnes	28
597	Sept. 28...	Can. Gen. Electric Co.	Peterborough	Elec. works	S. H. Butler	21
598	" 21...	American Can Co.	Hamilton	Tin cans	May Dwyer	20
599	October 5...	D. S. Perrin & Co.	London	Biscuits	Earl Barrett	..
600	" 5...	D. S. Perrin & Co.	London	Biscuits	J. R. Wellspring	..
					Sam. Grovier	..
					Alex. Russell	..
601	" 6...	Graham Nail Works	Toronto	Nails	Kris Tom	35
602	" 6...	Hamilton Steel & Iron Co.	Hamilton	Steel & iron	John Madam	20
603	" 11...	Hamilton Steel & Iron Co.	Hamilton	Steel & iron	J. Gompf	27
604	" 11...	Hamilton Steel & Iron Co.	Hamilton	Steel & iron	Chas. Shaw	27
605	" 6...	McLaughlin Carriage Co.	Oshawa	Carriages	Harry Fair	..
606	" 11...	Hamilton Steel & Iron	Hamilton	Iron	Cino. Toni	33
607	" 4...	Massey-Harris Co.	Brantford	Machinery	Geo. Abbott	27
608	" 4...	Massey-Harris Co.	Brantford	Machinery	Fred. Hunter	40
609	" 6...	Can. Pacific Ry. Co.	W. Toronto	Car shops	John Law	56
610	Sept. 26...	Strathroy Furn. Co.	Strathroy	Furniture	Willard Norman	..
611	October 3...	Strathroy Furn. Co.	Strathroy	Furniture	S. Mitchell	..
612	" 7...	Can. Colored Cotton Mills	Hamilton	Cotton	Harry Barron	15
613	" 5...	The Dochart Co.	Arnprior	Brick & tile	Wm. John	48
614	" 14...	Hamilton Steel & Iron	Hamilton	Steel & iron	Ferrando Fancesk	29
615	" 13...	Thomas Bros.	St. Thomas	Brushes	Leonard Cleaver	16
616	" 4...	Delany & Pettit Co.	Toronto	Curled hair, etc.	Hugh McMillan	27
617	" 12...	Page-Hersey Iron & Tube Co.	Welland	Tubes	W. Nicholls	26
618	" 18...	Scotland Box & Mfg. Co.	Scotland	Boxes	Wm. Ferrill	20
619	" 15...	McClary Mfg. Co.	London	Foundry	Steve Romashka	25
620	" 12...	Canadian Locomotive Co.	Kingston	Boilers	Leo. Tucker	..
621	" 14...	Ontario Iron & Steel Co.	Welland	Iron castings	N. Bartonnell	26
622	" 17...	Provincial Steel Co.	Cobourg	Steel	Angus Hesketh	40
623	" 18...	W. A. Kribs	Hespeler	Lumber	Harry Wannsley	..
624	" 13...	Goldie & McCulloch Co.	Galt	Machinery	Robt. Marshall	54
625	" 1...	Hamilton Steel & Iron	Hamilton	Steel goods	Angelo Perozini	18
626	" 4...	Superior Portland Cement	Orangeville	Cement	Milton Sansom	17
627	" 22...	J. B. Armstrong Co.	Guelph	Carriages	John Taylor	..
628	" 22...	McClary Mfg. Co.	London	Stoves	N. Jackson	15
629	Sept. 24...	Hamilton Steel & Iron Co.	Hamilton	Steel & iron	Leonard Cavanni	14
630	October 20...	Collingwood Shipbuilding Co.	Collingwood	Shipbuilding	Danto Cipalare	25
631	" 25...	Gendron Mfg. Co.	Toronto	Vehicles, etc.	Wm. Goddard	..
632	" 22...	Kemp Mfg. Co.	Toronto	Enameled	T. Johnston	23
633	Sept. 9...	Bain Wagon Co. Ltd.	Woodstock	Wagons	John S. Wilson	33
634	October 12...	Canadian General Electric	Peterborough	Elect. works	C. Duggan	42
635	" 17...	Canadian General Electric	Peterborough	Elect. works	J. Landry	27
636	" 1...	American Can Co. Ltd.	Hamilton	Tin cans	M. Brodinska	17
637	" 1...	Massey-Harris Co. Ltd.	Toronto	Farm impl.	R. Kalmaer	40
638	" 1...	Massey-Harris Co. Ltd.	Toronto	Farm impl.	M. Hamer	50
639	" 1...	Massey-Harris Co.	Toronto	Agril. impl.	H. Callen	..
640	" 1...	Massey-Harris Co.	Toronto	Agril. impl.	L. Jackson	28
641	" 2...	Office Specialty Co.	Newmarket	Furniture	Norman Osborne	17
642	" 18...	Canada Cement Co.	Bellville	Cement	Frank Kyle	30
643	" 2...	J. R. Booth	Ottawa	Lumber	Francis Garvin	..
644	" 15...	Can. Heating Iron Co.	Guelph	Iron tubes	Thos Rhodes	19
645	" 1...	Globe Casket Co.	London	Undertaking sup	W. Murphy	..
646	" 2...	Abbott Grant & Co.	Brockville	Coal	Omer Sargeant	23
647	" 2...	Frost & Wood Co.	Smith's Falls	Foundry	Jos. Chisholm	21
648	" 2...	Frost & Wood Co.	Smith's Falls	Foundry	Tony Pitrien	33
649	" 2...	Taylor Forbes Co.	Guelph	Foundry	W. Durkin	21
650	" 2...	Taylor Forbes Co.	Guelph	Boilers, etc.	Wm. Harris	34
651	" 2...	Taylor Forbes Co.	Guelph	Boilers, etc.	F. Gazzard	..
652	" 5...	Canada Car Co.	Cobourg	Boilers, etc.	Allen Burgers	19
653	" 11...	Canada Car Co.	Cobourg	Cars, etc.	David Hill	21

FOR THE YEAR 1910.

Particulars.	No.
Foot amputated; stepped into crusher rolls.	573
Emery wheel burst; lost one finger, others broken.	574
Two fingers crushed on dieing and creasing press.	575
Leg and arm broken; caught in spindle on boring mill.	576
Three fingers bruised in feed of endless jointer.	577
Great toe injured; plank dropped on foot.	578
Thumb pared down on under side while operating variety saw.	579
Thumb of right hand cut on power knife.	580
Muscles and cords above wrist, cut on revolving knives.	581
Stab between thumb and finger; hand struck pointed end on spindle.	582
Lacerated hand on trip hammer.	583
Loaded truck over balance and fractured left leg.	584
Hot iron splashed and burned right foot.	585
Foot, burned badly; stumbled and splashed hot metal on it.	586
Cut at second point, left hand; caught thumb on shaper.	587
*Crushed between beam post and elevator door so severely that death resulted.	588
Injured eye sight; molten iron splashed in face.	589
Eye burned; molten iron splashed in face.	590
Molten iron splashed on boot burned heel and great toe.	591
Tip of third finger severed; caught in large drum and pinched off.	592
Little finger of right hand smashed; caught between two ingots while loading buggy.	593
Board caught in saw; struck him in the side.	594
Struck wrist against pile sheet; iron gashed wrist.	595
Finger badly torn; caught in hoist.	596
Side of face burnt and hair singed; threw 2,080 volts into 550 volt circuit.	597
Little finger crushed; caught in mould.	598
*Elevator dropped to basement.	599
Seriously injured	600
Seriously injured.	
Badly hurt.	
Arm broken and feet scalded; breaking of chain on hoisting crane.	601
Shears smashed fingers.	602
Hands and face badly burnt by hot iron.	603
Hands and face badly burned while removing clay out of hole.	604
Two fingers jammed between barrels.	605
Tongs fell and smashed toe.	606
Elevator dropped; badly shaken up.	607
Elevator dropped; badly shaken up; pulled cable too violently throwing it off pulley.	608
Eye injured; piece flew off bolt and struck eye.	609
Hand injured by coal tar.	610
Struck in body by a piece of wood from rip saw.	611
Finger crushed between gears and cloth folding machine.	612
Amputated left hand; while shovelling clay into crusher hand was jammed.	613
Forefinger cut; caught between piece of pipe and guard to shears.	614
Toe smashed by freight elevator.	615
Loss of finger on swing saw.	616
Left arm cut; backed into hole and arm struck corner of concrete floor.	617
Finger cut on circular saw.	618
Eye burned; while pouring hot metal some flew in eye.	619
Fell while carrying a pail of rivets and scraped shin.	620
*Neck broken; emery wheel broke. He was knocked between two draft bars.	621
Forefinger jammed between rail and roller.	622
Part of left hand taken off on buzz planer.	623
Finger taken off at second joint; caught in nut tapping machine.	624
*Toe bruised and cut; bar fell on foot; died from typhoid and poisoned toe.	625
Wound on shaft and left arm severed from body while installing new rotary kiln.	626
Eyes injured; babbit blown in eyes.	627
Hole punched in finger by die on stamping press.	628
Left hand fingers cut; caught between two iron rolls while unloading.	629
Fell from staging; bruised head, back and shoulder.	630
Fingers on left hand cut.	631
Fingers right hand injured in crank press.	632
Left hand forefinger, severed at second joint on jointer.	633
Piece of steel from hammer head flew and injured right eye sight.	634
Two fingers right hand off; punch tripped twice.	635
Three fingers cut by knife of notching machine.	636
Pig iron fell on foot and injured same.	637
Molten iron splashed and burned side of right foot.	638
Lumber fell and crushed head.	639
Toe of left foot injured.	640
Cope of flask fell on foot; punch fell on fingers.	641
*Caught between two spur gears in motion while oiling near gears; neglected to shut down engine.	642
*Jammed between end of log and side of mill. Death resulted from loss of blood.	643
Forefinger left hand broken; spindle of tapping machine fell on hand.	644
Thumb severed on circular saw.	645
Finger torn while feeding cracker machine.	646
Gas ignited and blew out in face when door in cupola opened and burned arms and face.	647
Burned on arms, neck and face by gas from cupola.	648
Abdomen crushed and back of head bruised; pile of cores fell on him.	649
Cores fell and bruised shoulder and side.	650
Portion of finger cut off on tin cutting machine.	651
Cut end of third finger; placed finger between tap and work.	652
Finger bruised on shearing machine.	653

*Fatal.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person injured.	Age.
654	October 26...	Trent Valley Woollen Co.....	Campbellford ...	Woollens	Geo. Miller	27
655	" 27...	D. S. Perrin Co.....	London	Confectionery ..	Jas. Fish	..
656	" 15...	Massey-Harris Co.....	Toronto	Agril. machinery.	Geo. Hayward..	45
657	" 7...	Massey-Harris Co.....	Toronto	Agril. machinery.	Ben Hyland.....	70
658	Nov'ber 1...	Wm. Davies Co.....	Toronto	Provisions	Wm. King.....	65
659	October 28...	McClary Mfg. Co.....	London	Stoves, etc.	Amos Robiliard..	29
660	" 26...	American Can Co.....	Hamilton	Cans	Thos. James....	19
661	" 28...	Pratt & Whitney Co.....	Dundas	Agril. impl.	Geo. Wilson	35
662	August 19...	Algoma Steel Co.....	Sault Ste. Marie.	Foundry	Frank Sonpelle..	35
663	October 21...	Algoma Steel Co.....	Sault Ste. Marie.	Foundry	Camillo Terzizi..	29
664	" 29...	Imperial Cotton Co.....	Hamilton	Twine, etc.	Frank Leather..	..
665	" 20...	Somerville Paper Box Co.....	London	Gum & boxes ...	Hy. Fitzmaurice.	20
666	" 27...	Renfrew Planing Mill.....	Renfrew	Lumber	Thos. Sheehan...	55
667	" 19...	Canadian Gen. Electric.....	Peterborough ...	Electric goods ..	W. Byers	19
668	" 20...	Canadian Gen. Electric.....	Peterborough ...	Electric goods ..	C. Francis	27
669	" 29...	Frost & Wood	Smith's Falls	Machinery	John Doyle	24
670	Nov'ber 3...	Collingwood Shipbuilding Co..	Collingwood	Shipbuilding	A. E. Vince....	26
671	" 3...	Can. Westinghouse Co. Ltd...	Hamilton	.....	John Herron ...	..
672	" 2...	Boeckh Bros. Co.....	Toronto	Brushes	Arthur Osborne.	..
673	" 7...	West Lorne Wagon Co.....	West Lorne	Wagons	Walter Irvin....	17
674	" 25...	Canadian Gen. Electric.....	Peterborough ...	Elec.	A. Williams	18
675	" 27...	Canadian Gen. Electric.....	Peterborough ...	Elec.	W. A. C. Davies.	31
676	" 3...	Page-Hersey Iron & Tube Co..	Welland	Iron, etc.	Melean Treleskie	30
677	" 4...	Collingwood Shipbuilding Co..	Collingwood	Shipbuilding ...	Thos. Dare....	35
678	" 3...	D. S. Perrin & Co.....	London	Confectionery ..	Frank Porter...	..
679	" 3...	International Harvester	Hamilton	Harvesters	N. Hochigan....	25
680	October 24...	Massey-Harris Co.....	Brantford	Agril. imp.	John Wright ...	35
681	" 29...	Massey-Harris Co.....	Brantford	Agril. imp.	John Bowden...	35
682	Nov'ber 4...	Hamilton Steel & Iron Co....	Hamilton	Steel & iron	Pante Verterchew	18
683	October 27...	Hamilton Steel & Iron Co....	Hamilton	Steel & iron	Andrew Bobby ..	48
684	" 19...	Hamilton Steel & Iron Co....	Hamilton	Steel & iron	W. Thomson ...	60
685	" 4...	Hamilton Steel & Iron Co....	Hamilton	steel goods	Comitto Giavanni	47
686	" 9...	McClary Mfg. Co.....	London	Biscuits	Harry Miles ...	29
687	" 17...	Andrews Wire Works.....	Watford	.....	R. Stevens	..
688	" 9...	Wm. Barber & Bros.....	Georgetown	Paper	Samuel Gihnour.	43
689	" 3...	Canada Foundry Co.....	Davenport	Foundry	W. Fraser	..
690	" 4...	Canada Foundry Co.....	Davenport	Foundry	E. J. Huckle....	..
691	" 3...	Canada Foundry Co.....	Davenport	Foundry	J. Dunn	..
692	" 11...	Somerville Paper Box Co.....	London	Paper boxes ...	Bloss Dodds....	18
693	" 16...	Hanover Specialty Co.....	Hanover	Cabinets	H. Deutchman..	..
694	" 8...	T. H. Taylor	Chatham	Woollen mills...	Job White	38
695	Nov'ber 9...	Jones Bros & Co.....	Dundas	Barbers' supplies	D. Moore	40
696	" 10...	Canada Foundry Co.....	Toronto	Foundry	A. Witheridge..	..
697	" 17...	Wm. Davies Co.....	Toronto	Packing house..	Henry Johnson..	..
698	" 18...	Collingwood Shipbuilding Co..	Collingwood	Shipbuilding ...	J. C. Clair.....	30
699	" 3...	Massey-Harris Co.....	Toronto	Farm impl.	A. Rose	38
700	" 2...	Massey-Harris Co.....	Toronto	Farm impl.	A. Lehtola.....	18
701	" 9...	Massey-Harris Co.....	Toronto	Farm impl.	A. Alranan ...	24
702	" 18...	Massey-Harris Co.....	Brantford	Farm impl.	George Bull.....	50
703	" 9...	Bain Wagon Co.....	Woodstock	Wagons	Edward Towns..	32
704	" 16...	Canadian Colored Cotton Co...	Cornwall	Cotton	Chas. Hunt	34
705	" 17...	Crossen Car Co.....	Cobourg	Cars	Edward Tinney..	42
706	" 18...	Goldie & McCulloch Co.....	Galt	Machinery	B. Michael.....	35
707	October 28...	McAuliffe Davis Lumber Co..	Ottawa	Lumber	Jos. Blais	17
708	Nov'ber 9...	Can. Gen. Electric	Peterborough ...	Elect. works....	H. Lewis	35
709	" 14...	Can. Gen. Electric	Peterborough ...	Elect. works....	W. Bolton	25
710	" 17...	Massey-Harris Co.....	Toronto	Machinery	E. Burton	..
711	" 28...	Kilgour Bros.....	Toronto	Paper	Wm. Davidson ..	16
712	" 22...	Can. Gen. Electric	Peterborough ...	Elect. works	J. Brownlee	67
713	" 14...	Can. Gen. Electric	Peterborough ...	Elect. works	H. Gould	55
714	" 22...	Telfer Mfg. Co.....	Toronto	Paper boxes	Howard Parks ..	19
715	" 19...	Canada Foundry Co.....	Davenport	Iron works	Albert Simmons.	..
716	" 19...	Canada Foundry Co.....	Davenport	Iron works	Peter Green....	..
717	" 21...	McLaughlin Motor Co.....	Oshawa	Motors	J. I. McLaughlin	40
718	" 28...	Dominion Textile Co.....	Kingston	Sheeting	Fred Fagon	15
719	" 14...	Massey-Harris Co.....	Toronto	Agril. imp	J. Pesenz.....	56
720	" 18...	Massey-Harris Co.....	Toronto	Agril. imp.	J. Miller	56
721	" 30...	Canadian Westinghouse.....	Hamilton	Elect. works....	N. Mahoney	..
722	" 24...	Can. Gen. Electric Co.....	Peterborough ...	Elect. works....	C. W. Stenson...	31
723	" 30...	Steel & Iron Co.....	Hamilton	.....	Ed. Gordon	35
724	Dec'ber 3...	Guelph Carpet Co.....	Guelph	Carpets	Allen McDonald.	44
725	Nov'ber 28...	Goldie & McCulloch	Galt	Machinery	Hubert Walker..	35
726	" 30...	Can. Colored Cotton Mills.....	Hamilton	Cotton	Mary Barsellin..	20
727	" 28...	McCormick Mfg.....	London	Biscuits	Jos. Bullard....	21
728	" 22...	Larkin & Co.....	Toronto	Tea	Douglas Lucas..	15
729	Dec'ber 2...	Trent Valley Woollen Co.....	Campbellford ...	Woollens	G. Sweet	16
730	" 6...	Wm. Cane & Sons.....	Newmarket	Woodenware ...	Wm. Dunn	14
731	" 29...	Canada Foundry Co.....	Davenport	Foundry	Thos. Forsythe..	..
732	" 29...	Can. Colored Cotton Mills..	Cornwall	Cotton	Albert Marson...	19
733	" 8...	Standard Ideal Co.....	Pt. Hope	Enameled ware.	J. Meigka	30

FOR THE YEAR 1910.

Particulars.	No.
Fell 20 ft. down elevator shaft; no bones broken; jar and concussion.	654
Left hand bruised on rip saw.	655
Fell on top of elevator cage; cut chin and shoulder.	656
Scalp cut; fell on pile of steel.	657
Leg bruised and torn on elevator.	658
Right arm severely burned by fire flying back from furnace.	659
Portion of index finger off; caught under punch.	660
Bad cut behind thumb and finger.	661
Hot metal burned side and back.	662
Three fingers burned while placing.	663
Index finger crushed while loading a car.	664
Piece taken off end of finger.	665
Left leg amputated; accident caused in moving machine from ground floor to second floor.	666
Nail and top of finger torn off on hand trimmer.	667
Nail and top of second finger cut off on foot shears.	668
Thumb and index finger amputated and rest of hand between knuckles split on drop hammer.	669
Face and left arm injured; fell while standing pulling on a plate.	670
*Saw threw a piece of lumber and struck him in abdomen; died.	671
Few burns and eyes filled with dirt by steam press bursting.	672
Head crushed between elevator and upright.	673
Nail off little finger caught between table and machine.	674
Right hand burnt to wrist; kink on wire opened stripper and hand plunged into hot compound.	675
Face and shoulder burned by hot pipe; welding bar pipe stuck bending bar and pipe.	676
Hip injured; fell while painting.	677
Badly burned arm while putting hot syrup into machine.	678
Index finger amputated and second finger lacerated; weight fell on hand.	679
Fell with ladle of molten iron; leg burned.	680
Breast and leg bruised; struck by end of overhead belt.	681
Head cut and left foot and hand injured; caught in fly wheel of steam pump.	682
Leg burned; casting fell on it.	683
Side bruised; line shaft broke the belt, which knocked him against machine.	684
Casting fell and smashed right thumb.	685
Foot burned; molten iron spilled.	686
Cords of arms strained; cylinder head of engine blew out.	687
Bruised and jammed and face slightly paralyzed; knocked against projecting fly wheel.	688
Foot burned.	689
Right hand lacerated while drilling hole in iron.	690
Bolt hit forehead and cut right eye.	691
Finger jammed.	692
Finger ground between revolving sand disc and table.	693
Broke one rib and splintered one; walked backwards into feeder spout.	694
Four fingers taken off on buzz planer.	695
Face burnt; torch exploded.	696
Hand and arm scraped while cleaning casing machine.	697
Skull fractured; hammer fell on head.	698
Leg broken above knee; straightening block fell against leg, crushing it against wall.	699
Index finger broken; caught between two trucks.	700
Molten iron splashed on leg and burnt it.	701
Right leg broken; pinion of large gear wheel attached to winding drum of elevator broke, allowing platform he was standing on to drop.	702
Thumb of left hand taken off on jointer.	703
Right arm broken; shoulder bruised; caught in shaft of warp dyeing machine.	704
Back and leg bruised; door he was adjusting slipped and knocked him over.	705
Plate slipped and fell on foot.	706
Cut end of finger on buzz planer.	707
Back of hand cut while grinding.	708
Scratch between wrist and little finger of right hand; cause unknown.	709
Third finger of left hand crushed; caught in press.	710
Left arm broken; caught between floor and elevator car.	711
Head gashed; fell against boring mill.	712
Palm and back of left hand cut; rope of air hoist broke and cap of pillow block fell.	713
Concussion of brain; walked into elevator shaft.	714
Leg bruised by hydrant falling on it.	715
Beam fell on foot.	716
Hand cut on band saw.	717
Right hand lacerated on spinning frame.	718
Finger broken; wheel slipped from hook on which it was suspended.	719
Back of right hand cut with saw.	720
Two fingers cut off on punch press.	721
Finger crushed on punch press.	722
Leg broken between knee and head bruised; mould fell on leg.	723
Two finger ends crushed on loom.	724
Portion of finger taken off in buzz planer.	725
Finger jammed while cleaning loom.	726
Left hand crushed in convertible brake between two rollers.	727
*Head jammed between elevator car and shaft; lifted automatic gate to bring up elevator instead of placing arm through aperture.	728
Finger caught in compressor and had to be amputated.	729
While guarding jointer hand slipped into knives.	730
Back wrenched and face cut while reaming pneumatic reamer.	731
Finger lacerated on beater.	732
Hand torn off; caught in shive while adjusting a cable in connection with elevator.	733

*Fatal.

LIST OF ACCIDENTS

No.	Date.	Employer.	Place.	Business.	Person injured.	Age.
734	Dece'ber 1...	Can. General Electric	Peterborough ...	Electric goods...	W. Jefferies	35
735	Nov'ber 29...	Can. General Electric	Peterborough ...	Electric goods...	I. McCracken...	20
736	Dece'ber 10...	D. S. Perrin Co.....	London	Biscuits	Albert Holdaway..	..
737	" 9...	Canada Cement Co.....	Belleville (Leigh Mill)..	Cement	Grena Cheritch..	20
738	" 9...	Massey-Harris Co.....	Brantford	Impls.	B. Wray	34
739	" 12...	W. C. Charters	Toronto	Lumber	Chas. Moore ...	17
740	" 12...	McClary Mfg. Co.....	London	Stoves	J. Cluff	18
741	" 12...	Canada Foundry Co.....	Davenport	Foundry	Jas. Hampton...	..
742	" 5...	Canada Foundry Co.....	Davenport	Foundry	J. Busato	..
743	" 8...	H. Gay & Sons.....	Oshawa	Planing Mill	Jos. Heggarty..	45
744	Nov'ber 25...	Hamilton Steel & Iron.....	Hamilton	Steel & iron ...	J. Hamilton	24
745	Dece'ber 14...	Firstbrook Box Co.....	Toronto	Paper boxes	Wm. H. Hallen..	25
746	" 14...	Hamilton Steel & Iron.....	Hamilton	Steel & iron	A. Chappelle....	22
747	" 8...	Hamilton Steel & Iron.....	Hamilton	Steel & iron	Gordon Small...	20
748	August 5...	John Brown	Hamilton	Whips	Geo. S. Brown..	32
749	Dece'ber 14...	Goldie & McCulloch	Galt	Machinery	John Clark	65
750	" 10...	Canada Foundry Co.....	Davenport	Foundry	A. Uden	..
751	" 12...	W. J. Gage & Co.....	Toronto	Stationery	Gertrude Kinsella	16
752	" 19...	Kemp Mfg. Co.....	Toronto	Metals	Jimmy Chris. ..	32
753	" 19...	Crossen Car Co.....	Cobourg	Cars	Thos. Tweedy...	30
754	" 25...	Canada Cement Co.....	Marlbank	Cement	Fred Lopt.....	25
755	" 13...	Canada Foundry.....	Davenport	Foundry	W. G. Kirkwood.	..
756	" 20...	Imperial Cotton Co.....	Hamilton	Cotton duck ...	M. Hutchinson..	..
757	" 23...	Imperial Cotton Co.....	Hamilton	Cotton duck ...	Robt. Powers....	..
758	" 21...	Adams Wagon Co.....	Brantford	Wagons	Wm. Long	38
759	" 21...	Canada Foundry Co.....	Davenport	Foundry	F. Janes.....	..
760	Nov'ber 30...	Massey-Harris Co.....	Toronto	Machinery	D. Hawkes	42
761	Dece'ber 19...	Massey-Harris Co.....	Toronto	Machinery	L. Radford	27
762	" 20...	John Morrow Screw Co.....	Ingersoll	Screws	Geo. Gibbons....	20
763	" 20...	Can. Gen. Electric Co. Ltd.....	Peterborough ...	Electric works..	F. McFadden...	20
764	" 16...	Can. Gen. Electric Co. Ltd....	Peterborough ...	Electric works..	J. Renshaw	34

FOR THE YEAR 1910.

Particulars.	No.
Cap of pillow slipped and fell on fingers cutting them.	734
Hysterics; gas escaped; she lit match to find it and attempted to blow it out instead of closing valve.	735
Face and hands burned by hot syrup.	736
*Tangled up in shaft.	737
Four fingers cut on jointing knives and wood planer.	738
Third finger of left hand taken off on jointing machine.	739
Flesh wound on thumb on press of stamping machine.	740
Died of heart failure.	741
Sprained ankle.	742
Lost finger and thumb on planer.	743
Top of finger cut off on first plate punch.	744
Left thumb cut on rip saw.	745
Loose brick fell and cut head.	746
Right foot crushed; while putting a gear wheel on block wheel it slipped.	747
Left hand and all fingers cut on circular saw.	748
*Right arm broken, side bruised, shoulder dislocated; in reaching for lever to stop drill, revolving cutter caught jacket twisting arm around stem of drill pin.	749
Leg bruised.	750
Tips of finger cut and partly severed on saddle of machine.	751
Two fingers right hand cut off.	752
Hand saw slipped injured hand.	753
Right arm broken, shoulder wrenched; trying to shift belt by leaning against it.	754
Steel plate fell and crushed fingers.	755
Shuttle thread broke and struck over eye by shuttle.	756
While moving heavy duck loom, crowbar swung around and struck him.	757
Clothes caught in shaft; left arm injured.	758
Finger cut; between dies of riveting machine.	759
Top of finger crushed between dies of punch.	760
Burned foot; molten iron fell on boot.	761
Lost nail and flesh of finger.	762
Three fingers right hand cut off on power shears.	763
Knee badly bruised; finger split open; motor frame fell while lowering arm on crane.	764

*Fatal.

Commando Lake—Cochrane.

NINTH ANNUAL REPORT

OF THE

Temiskaming and Northern Ontario Railway Commission

For Year Ended October 31st

1910

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed and Published by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1911.

Printed by
WILLIAM BRIGGS,
29-37 Richmond Street West,
TORONTO

To His Honour COLONEL J. M. GIBSON, K.C.,

Lieutenant-Governor of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to Your Honour the Ninth Annual Report of the Temiskaming and Northern Ontario Railway Commission, for the fiscal year ended October 31st, 1910.

Respectfully submitted,

J. O. REAUME,

Minister of Public Works.

TORONTO, JANUARY 23RD, 1911.

HON. J. O. REAUME,

Minister of Public Works,

Toronto, Ontario.

SIR:—I have the honour, by direction, to submit to you for presentation to the Legislature the Ninth Annual Report of the Temiskaming and Northern Ontario Railway Commission for the fiscal year ended October 31st, 1910.

I have the honour to be,

Sir,

Your obedient servant,

A. J. MCGEE,

Secretary-Treasurer.

The Temiskaming and Northern Ontario Railway Commission.

J. L. Englehart	*Chairman*	Petrolia.
Denis Murphy	*Commissioner*	Ottawa.
Frederick Dane	*do and Land Commissioner*	Toronto.

CHIEF OFFICERS

A. J. McGee	*Secretary-Treasurer*	Toronto.
J. H. Black	*Superintendent*	North Bay.
S. B. Clement	*Chief Engineer*	do
H. F. Macdonald	*Acting Accountant*	Toronto.
W. A. Griffin	*Traffic Accountant*	North Bay
A. J. Parr	*Freight & Passenger Agent*	do
*T. Ross	*Acting Master Mechanic*	do
Wm. Young	*General Roadmaster*	do
Geo. W. Lee	*General Agent*	do
W. A. Graham	*Storekeeper*	do
A. R. H. Mitchell	*Travelling Auditor*	do
C. L. Ferguson	*Paymaster*	do
Arthur A. Cole	*Mining Engineer*	Cobalt.
†Cecil B. Smith	*Consulting Engineer*	Toronto.

*Appointed Master Mechanic, effective January 1st, 1911.
†Resigned, effective December 31st, 1910.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

General Remarks.

Accounts and statistics for year ended October 31st, 1910, herewith:—
The mileage in operation on October 31st, 1910, was:—

Main Line.

	Miles.	
North Bay to Englehart	138	
Englehart to Cochrane	114.3	
Total		252.3

Branch Lines.

Charlton Branch	7.8	
Kerr Lake Branch	3.9	
Haileybury Spur	1.64	
Total		13.34

Yards and Sidings.

Yards and Sidings, Main and Branch Lines	74.5	
Liskeard Spur	.64	
Total		75.14
Total mileage		340.78

Following is the condensed statement of Revenue Account for the year ended October 31st, 1910, compared with the year 1909. The subdivisions of the condensed items given below for year 1910 are shown in detail in the financial part of this report.

	1910	1909
Revenue from Transportation	$1,522,020 05	$1,489,153 93
Revenue other than Transportation	69,831 97	80,541 36
Total Operating Revenue	$1,591,852 02	$1,569,695 29
Operating Expenses*	1,165,361 36	925,599 65
Net Operating Revenue	$426,490 66	$644,095 64
Ore Royalties	31,762 92	193,032 68
	$458,253 58	$837,128 32
Hire of Equipment, etc.	22,123 27	5,609 97
Total Earnings	$436,130 31	$831,518 35
Paid Treasurer of Ontario	$420,000 00	$550,000 00

*The Operating Expenses amount to 73.2 per cent. of the Gross Earnings, and the Net Earnings to 26.8 per cent., as compared with 58.9 per cent. and 41.1 per cent., respectively, for the twelve months ending October 31st, 1909.

The total of the pay rolls for the year amounted to:—

Operation	$794,601 82
Construction	83,590 25
Total	$878,192 07

Insurance.

Following is a statement of Fire, Employers' Liability and Guarantee Insurance in force October 31st, 1910.

Fire.

Group 1.—On buildings, including all office permanent fixtures as follows:—

Station Buildings	$112,250 00
Agents' Dwellings	8,000 00
Section Houses	47,200 00
Freight Sheds	54,500 00
Engine Houses	12,250 00
Store Houses	47,105 00
Track Scale	1,200 00
	$282,505 00

On contents of buildings, excluding all office permanent fixtures but including merchandise, as defined under group 8 hereof, movable and office furniture, telegraph instruments, and property of all kinds.

Station Buildings	$10,625 00
Freight Sheds	93,500 00
Store Houses	43,000 00
	$147,125 00

In car and locomotive, machine and boiler shops, painting and erecting shops, engine and boiler houses, and other buildings used for manufacturing.

Buildings, including permanent fixtures and fittings	$22,700 00
Stock manufactured, unmanufactured, and in process of manufacture, materials and supplies	19,000 00
Fixed and movable machinery and machines, engines, boilers, dynamos, motors, patterns (limit on any one pattern or set of patterns, $250,000), tools, implements, utensils and all plant	14,200 00
	$55,900 00
On tanks, supports, pumps, engines, tools, implements, and plant connected therewith, or pertaining thereto	$52,135 00
On bridges, trestles and their approaches	109,161 00
On decks and steel structures	14,999 00
On coal trestles and chutes, piers, pockets, sheds and platforms used for the storing or handling of coal	40,500 00

On platforms		$668 00
On decks		950 00
On the coal		19,000 00
		$237,716 00
On rolling stock, covering all that owned by the assured in any engine or car house or repair shop, or otherwise upon the line of the road and its branches, spurs, sidings, and yards with the following limits	$1,227,400 00	
On freight in transit, including earned freight earnings	200,000 00	
On various buildings and contents distributed over the entire line where the individual liability does not exceed $250.00	13,500 00	
On miscellaneous specified insurance covering buildings and contents, not coming under heading of any other group	16,060 00	
	$1,455,960 00	

Total of entire schedule, $2,179,206.00.

The rate on all the above is fifty cents per hundred dollars and is divided twenty-five per cent. with the Mercantile Fire Insurance Company, thirty-five per cent. with the London and Lancashire Fire Insurance Company, twenty per cent. with General Fire Assurance Corporation, fifteen per cent. with the Norwich Union Fire Insurance Society; five per cent. with the Union Assurance Society who took over the risk of the Richmond and Drummond Fire Insurance Company.

In addition to above, $41,725.00 is in force on dwellings, office building and contents situate in North Bay and Toronto upon which tariff rates prevail.

Employers' Liability.

On Commissioners and staff, Toronto office, officials at North Bay, including Accountant, Chief Despatcher, Purchasing Agent and their staffs, and the office staffs of the Superintendent, Chief Engineer, Freight and Passenger Agent and Master Mechanic	$50,000 00
On Chief Engineer, Civil Engineers, and their staffs on field work	20,000 00
On all occupations in connection with operation of 252 miles of Railway between North Bay and Cochrane, including enginemen, trainmen, shop employees, station agents, telegraph operators, section gangs, bridge gangs, linemen, inspectors, pumpmen, freight and passenger agent, storekeeper and staff and master mechanic	450,000 00
Total	$520,000 00

Guarantee.

On officials and chief clerks	$60,500 00
On station agents	35,350 00
	$95,850 00

The Master Mechanic, A. Allan, having resigned, effective June 10th, 1910, T. Ross, Locomotive Foreman, was appointed Acting Master Mechanic.

The Mining Engineer's report, included herein, is for the full calendar year ending December 31st, 1910.

Earnings.

The comparative Statement of Earnings is significant, and in order that a fair comparison may be made with the previous year (the 1909 report represented ten months only), we have added to the 1909 figures ending Oct. 31st, 1909, the months of November and December, 1908.

It shows that notwithstanding the advent of the Power Companies, concentration of ores, settling down of Cobalt to normal mining conditions, the receipts from passengers and freight have increased, demonstrating that the Great Northland has come to stay, dispelling the thought, frequently expressed, that if it were not for the mining industry the future success of the Railway would be in doubt.

Expenses.

The Operating Expenses show an increase of $239,761.71 over the previous twelve months and for which Maintenance of Way and Structures is responsible for $167,334.26. This increase is one which could not have been avoided or delayed to maintain efficiency, to say nothing of the extra traffic over the Railway, and particular attention is called to the comparison of the following increases in the most important items under this head:—

Roadway and Track.

Total Expenditure, 1910	$193,145 90
Total Expenditure, 1909	115,571 55
Showing increase of	$77,574 35

The increase was justified because it is acknowledged that the Roadway and Track is the factor of a Railway's standard, as well as it is a point of economy of its care, the factor of safety lies with Roadway and Track. The Railway itself is based upon it and hence, for years 1911 and 1912, expenditure is justified until efficiency of Roadway and Track has been fully maintained and brought up to standard.

Ties.

Expenditure, 1910	$51,115 52
Expenditure, 1909	1,963 72
Increase of	$49,151 80

This is accounted for by poor quality of ties; firstly, that were laid when building Railway, and secondly, through large spacing—2,500 ties per mile of track of such grade and quality as are obtainable in the Northland is neither sufficient number for the factor of safety or economy; 2,800 ties per mile is nearer measure of economy, as well as safety.

Buildings, Fixtures and Grounds.

Expenditure, 1910	$34,049 93
Expenditure, 1909	27,037 48
Increase of	$7,012 45

We have all become familiar with the fact that buildings along the line, while they served a good purpose, were neither in convenience or requirements up to the standard called for by a Railway of the present hour.

Ballast.

Expenditure, 1910	$15,419 32
Expenditure, 1909	4,014 50
Increase of	$11,404 82

Ballasting the line under construction is, to say the least, a failure. It was done as it is usually done. Certain portions south of Liskeard were fairly well ballasted, many miles not at all, and as ties, rails, roadbed, are the foundation of a Railway, ballast is the re-enforced cement requirement to maintain, as well as sustain. There are many miles of the road to-day without ballast, and it is proposed to continue policy for year 1911 and 1912, or until entire Railway is ballasted on lines of economy with the greatest factor of safety.

Rails.

Expenditure, 1910	$16,172 01
Expenditure, 1909	4,152 46
Increase of	$12,019 55

First Division of Railway (113 miles) has 50.2 miles of curves. Rails on that portion of line utilized in building of road, there was no care exercised by the contractors. There was neither a proper stamp nor fill—any old way served the purpose so long as engine would remain on track. Hence, we have been called upon, and will be called upon to re-lay quite a few miles of the first division.

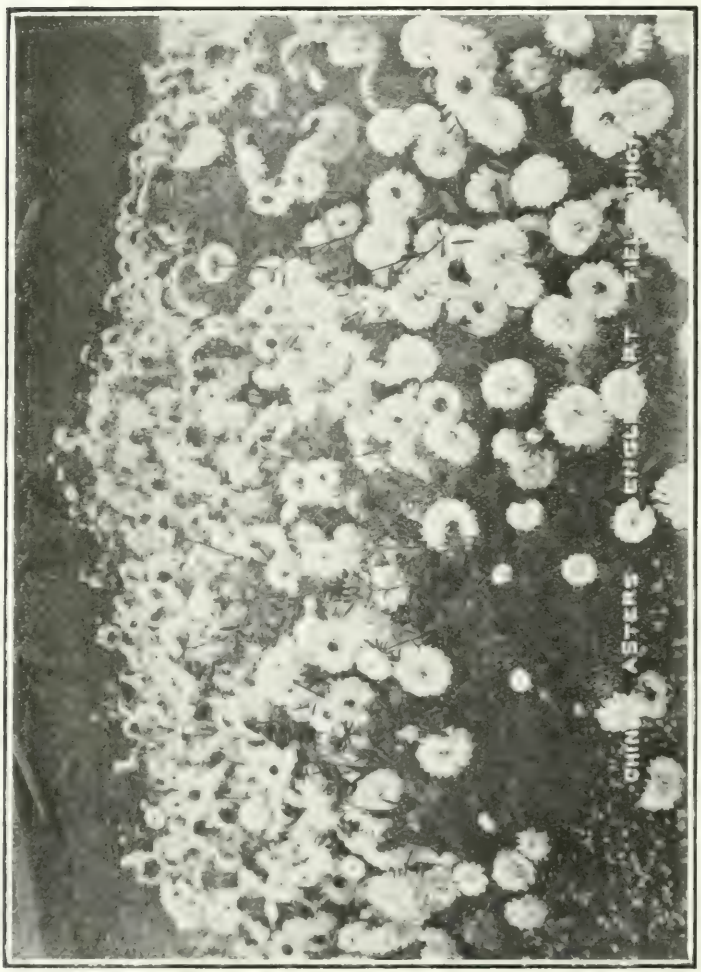
Bridges, Trestles and Culverts.

Expenditure, 1910	$16,160 38
Expenditure, 1909	8,079 66
Increase of	$8,080 72

Of very large number of trestles on line, larger portion are temporary, requiring heavy expenditures to maintain and for re-enforced culverts required and will necessitate larger expenditures during 1911 and 1912.

Other Track Material.

Expenditure, 1910	$8,230 36
Expenditure, 1909	1,491 30
Increase of	$6,739 06



China Asters. Englehart Greenhouse.

Chrysanthemums Englehart.

Necessity for this expenditure, the principal items which are track spikes, angle bars, tie plates, is self-evident, in fact all the expenditures are self-evident and none would have been made or would be made unless absolutely required.

Forestry.

During the year we have had occasion to follow up this very important subject-matter. The Hot-houses and propigating benches and frames, under the charge of D. Kerrigan, as Forester, etc., have done some very good work, and though in experimental stages, we have planted quite some few acres of Cedars, Tamaracs, and Spruce, which are doing well. At North Bay, Temagami, Haileybury and Englehart, shrubs (annuals and perennials), landscape effect in a measure, have served good purposes, and warrants continuation and enlargement. Our purposes are, for present year, in addition to stations named, to take care of Latchford, Cobalt, Liskeard and Matheson, with possibly one or more additional stations.

Nut trees, including Walnut, Butternut, Hickory, Chestnut and Hazel have been "heeled in" for early transplanting, with some of Maple hard and soft—Elm, Beech, preparation in ballast pits, for reforestration, tie timbers. In this respect, our efforts are directed to native trees, as far as possible in experimental way, with the hope that we can enlarge materially their use.

Mining, Minerals and Power.

Particular attention is directed to the report of Mining Engineer Arthur A. Cole for the year. Mr. Cole's report for 1909 has found lodgment with various Engineering and Mining Institutions and Associations, and applications have come for these reports, not alone from the United States, but also from Foreign Countries.

Surveys.

Chief Engineer, S. B. Clement. During past year surveys have been continued, notably surveys for possible diversions:—

North Bay to Riddel, M. P. 1 to M. P. 34.
Temagami to Gray, M. P. 72 to M. P. 75.
Johnson to Latchford, M. P. 90 to M. P. 94.
Cassidy to Cobalt, M. P. 100 to M. P. 103.
North Cobalt to Liskeard, M. P. 105 to M. P. 113.

We are hopeful that results from these surveys will not alone prove beneficial for betterment of line, reduction of grades and curves, but largely from point of economy, in maintenance of way and transportation charges.

Porcupine Prospective Gold Camp.

The surveys having continued, work now in hand is building of the Railway from M. P. 224½ (Iroquois Falls) to Metagami River, in south-westerly direction, about forty miles. We are hopeful to have this line completed as far as Porcupine Lake by July 1st, 1911.

Re-Alignment and Curves—Main Line.

Surveys in this direction continue. As reports indicate, a number of curves have been eliminated, trestles filled. There is much work in that direction yet to be done as a measure of safety and of economy.

Agriculture.

The good work under the charge of Commissioner Frederick Dane and Assistant Land Agent, Geo. W. Lee, North Bay, has continued and met with results. The fairs at Liskeard, Englehart and Charlton have emphasized, if that were necessary, the possibilities of the Temiskaming Land. The exhibits that have been made at these fairs have demonstrated that grasses, roots, cereals and various vegetables can not alone be grown to advantage, but the reports from Department of Agriculture and Officials of various Societies have placed the hall-mark on the products of the Northland. But our claims are, with our faith, that many of vegetables, as well as grain, can be supplied as seed that heretofore we have so largely imported from Maritime Provinces, notably potatoes, and from other Provinces, as well as Foreign lands; the grasses—timothy and clover—oats, barley, with possibility of wheat—fall and spring—for seed.

The vigorous campaign which has been carried on during the past year, with the kindly co-operation of the Department of Agriculture, has brought about results of which the following is an object lesson.

Agricultural implements for the year show an increase of 38 per cent. and is a splendid endorsation to show the improved agricultural possibilities of that great Northland. Settlers' effects also show an increase of 38 per cent., shipments of hay 30 per cent., potatoes of 25 per cent., all home grown products.

Thomas Dilworth, Chairman of the Ontario Vegetable Growers' Association, at a meeting held in London, Ont., in September, said amongst other things:—

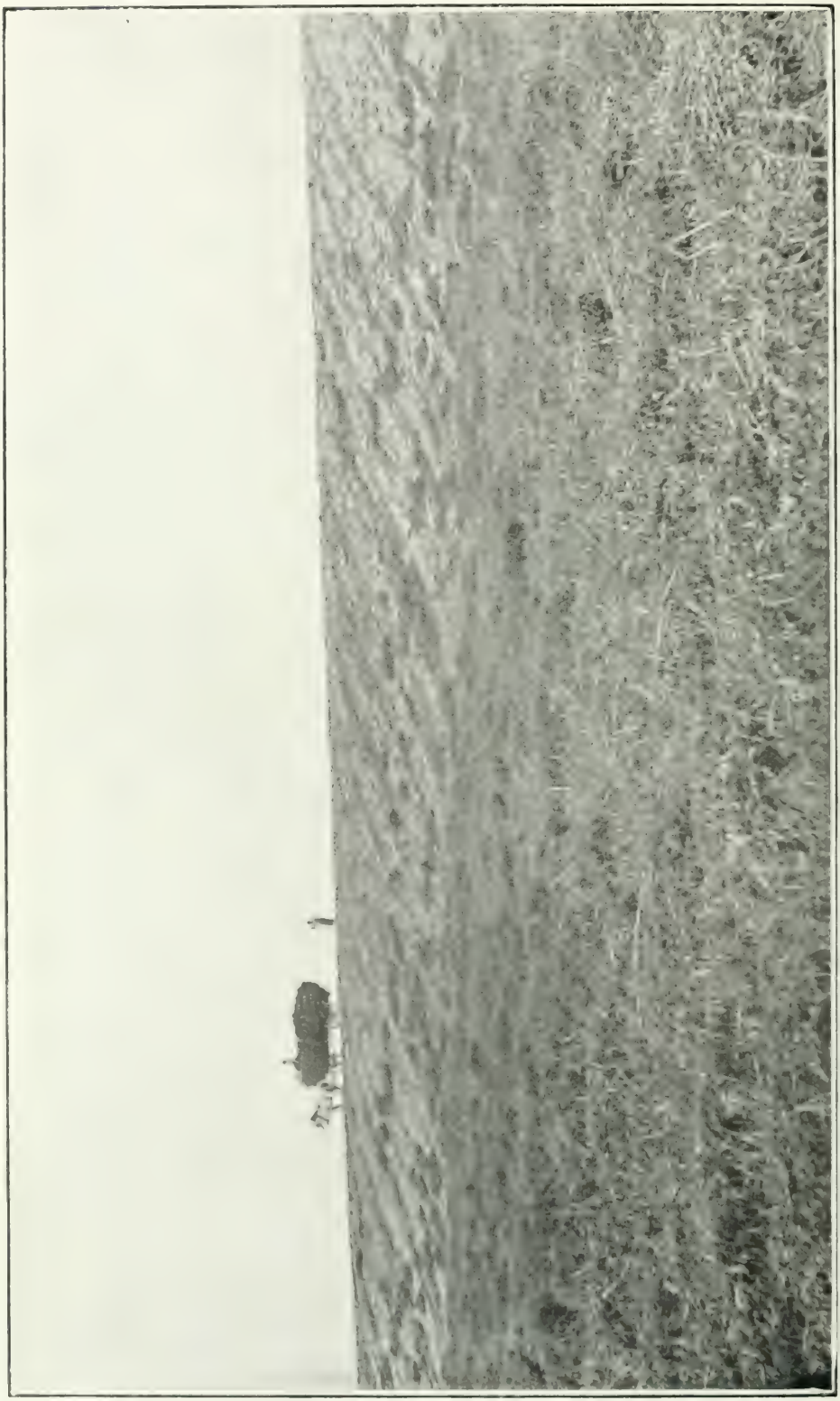
"I never saw potatoes make more luxuriant growth in my life than in that country. I can say to you that in New Ontario we have the very best farming land.

"In one small potato patch we saw potatoes planted in rows three feet apart; the vines were six feet eight inches in length, and from eleven sets taken up 741/4 lbs. of potatoes were harvested. One potato weighed four pounds two ounces. I want you to notice the texture of the skin of these potatoes.

"I saw one market garden at Liskeard worked by a man named Brillinger, and is as fine a garden as any man would wish to see, no matter where he goes.

"We saw timothy alongside the track three and four feet high; straw that could not possibly lie down: barley and oats so long that you could not get any reaper in Old Ontario to cut it, and it was not lodged. A country that can grow straw and corn like that can grow anything else, and its future seems to be assured."

Last year we ran two farmers' excursions to Northern Ontario. We also extended an invitation to various editors of farming journals in the Province, to inspect for themselves the truth. As representatives we had Messrs. W. J. Brown, Agricultural Editor of the Toronto *Globe*; A. B. Cutting, of the Toronto *Mail and Empire*; W. L. Smith, Toronto *Weekly Sun*; W. D. Albright, *Farmers' Advocate*, London. What they saw can best be appreciated by letters on file, and the press notices published in the various newspapers and journals throughout the country.



Pea field—Englehart.

Auditors' Repo ts.

We have pleasure, as well as satisfaction, in directing attention to the reports of the Travelling Auditor, A. R. H. Mitchell, and the independent report of Chartered Accountants, Messrs. Edwards, Morgan and Company.

LISKEARD, ONTARIO,
October 4th, 1910.

Travelling Auditor's Report—Accountant's Office, Toronto.

Open Accoun:s.

Accounts collectible.
Accounts Payable.
Agents and Conductors.
Foreign Freight.
Foreign Tickets.
Car Mileage.

I have checked the open accounts for months Nov., 1909, to June, 1910, inclusive, and find same correct. Balances checked against General Ledger and certified correct. Certification duly marked on face of each balance.

Work is well in hand and books carefully and neatly handled.

Reviewing above accounts, which I have checked, might say that system is good, and manner in which same being handled commendable.

Later will check remaining four months to complete year ending October 31st, and make fuller report.

A. R. H. MITCHELL,
Travelling Auditor.

TORONTO, July 30th, 1910.

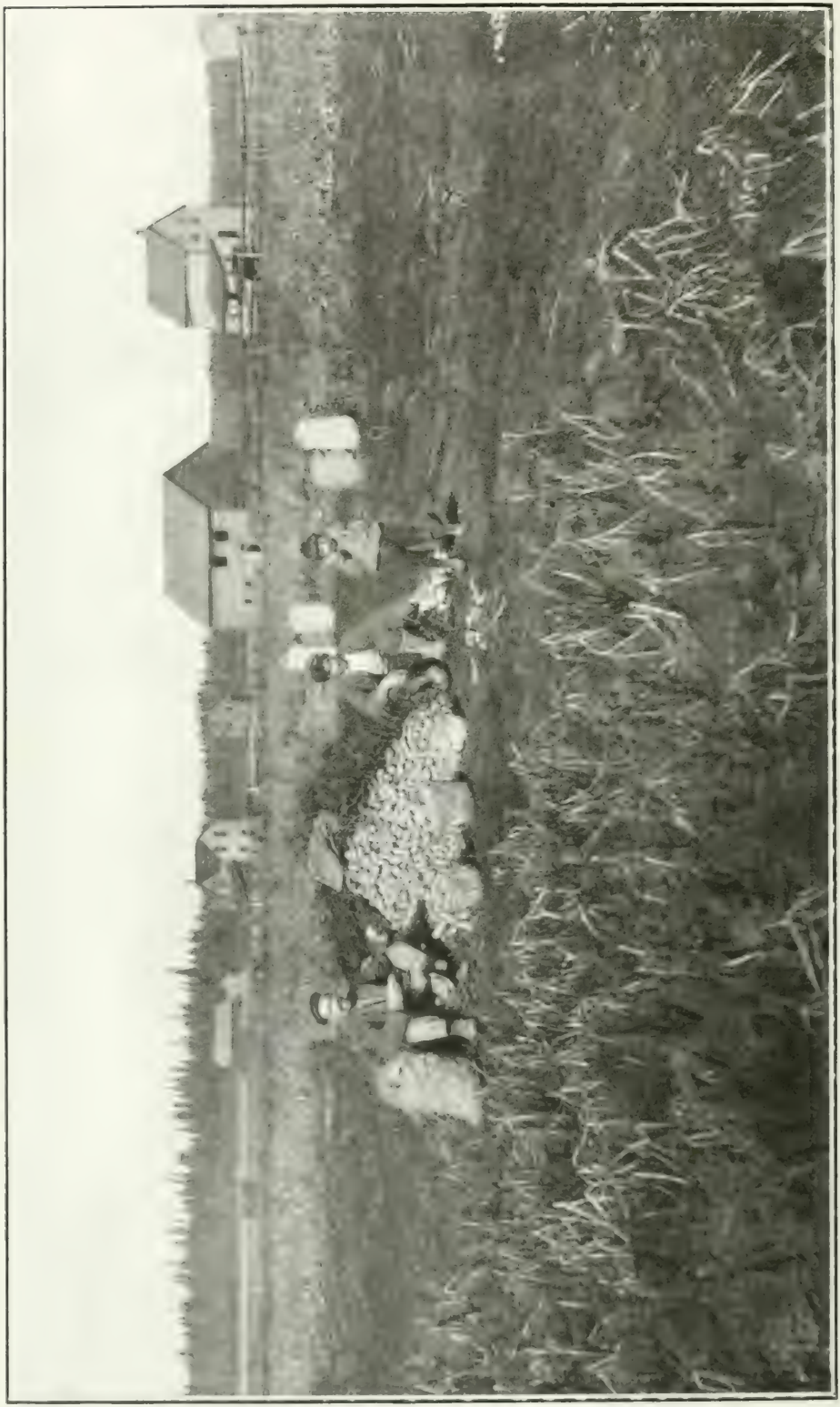
J. L. ENGLEHART, ESQ., *Chairman.*

Temiskaming and Northern Ontario Railway Commission,
Toronto, Ontario.

DEAR SIR,—We beg to report that pursuant to instructions from the Commissioners we have made an examination of the books of the Temiskaming and Northern Ontario Railway Commission for the purpose of determining the accuracy of the Cash and Bank Balances, and the outstanding accounts receivable of the Commission.

Having applied all usual and proper tests, we find that on the 31st day of October, 1909, the said Cash and Bank Balances are fully accounted for, and that the details of the outstanding accounts conform with the General Ledger account.

Yours very truly,
EDWARDS, MORGAN & COMPANY.



Potato field, McFarlane farm—New Liskeard.

COUNSEL'S REPORT—D. E. THOMSON, K.C.

Litigation.

At the close of the Financial year there were no actions pending in which the Commission was plaintiff, and only the following in which it is defendant:—

(*a*) *MacDonnell* v. *T. & N. O.* Action by contractor under second construction contract; submission to arbitration having by consent been revoked.

(*b*) *Edwards* v. *T. & N. O.* Action by liquidators of McRae, Chandler and McNeil, Limited, under construction contract with that Company.

(*c*) *Charlton Fire Claims.* Three suits have been instituted; two in the District Court of Nipissing (in neither of which has statement of claim yet been delivered), the third in the Superior Court, defence of which has been handed over to the Insurance Companies.

Canadian Construction Company.

Litigation is threatened by the above Company, arising out of the Charlton Branch construction contract.

Accident Claims.

During the year a number of claims by employees and other parties have arisen that have all been settled without litigation.

Damage Claims.

Many claims have arisen during the year with reference to freight, etc., lost, destroyed, delayed, misdelivered or damaged: some have been abandoned, some adjusted, others still pending. None have been placed in suit.

Nipissing Junction Connection.

Terms of agreement with the Grand Trunk Railway Company for building connecion between North Bay and Nipissing Junction and for leasing the same to the Grand Trunk have been under discussion for some time. Latterly matter has been left standing in view of pending negotiations for running rights.

Grand Trunk Running Rights.

Negotiations are in progress for an agreement giving the Grand Trunk running rights over the main line of the Commission's railway from North Bay to Cochrane, and it is hoped that arrangements satisfactory to all parties will shortly be consummated.

Cobalt Additional Sidings.

Some months ago an order was procured from the Ontario Railway and Municipal Board permitting the expropriation from the Cobalt Lake Mining Company of the requisite surface rights and of the right to fill in. The work has been done, leaving the claim of the Mining Company to be settled by arbitration. Mr. R. J. Fleming has been appointed the Mining Company's arbitrator and Mr. Chas. Miller the Commission's arbitrator. The third arbitrator has not yet been appointed.

Mining Leases.

Agreements to amend mining leases so as to substitute for the present rentals the proposed new scale based on net profits, have been drafted, but the terms of same have not yet been settled with the Mining companies.

Surface Rights.

Negotiations are pending with the Wright Mining Company, and the Cobalt Town Site Mining Company for adjustment of differences that have arisen as to the rights of the Commission and Mining Companies respectively to deal with the surface for purposes unconnected with mining.

REPORT OF S. B. CLEMENT, CHIEF ENGINEER.

I beg to present the following report of work done under the direction of the Chief Engineer, for the twelve months ending October 31st, 1910.

Surveys.

Nipissing Junction Spur.

A spur line connecting the North Bay Junction yards with the Grand Trunk Railway at Nipissing Junction was located and complete plans, specifications, and estimates were prepared.

Elk Lake—Gowganda Branch.

During the year the location of a branch line from Charlton to Elk Lake and Gowganda was completed and plans and estimates of cost were prepared. A trial line was also run between Earlton and Elk Lake.

Porcupine Branch.

Preliminary surveys were made for a branch line into the Porcupine Mining District. The area represented by a triangle, the base of which is the operated line between Matheson and Nellie Lake and the apex the township of Tisdale, was carefully explored and trial lines were run wherever necessary to determine the topographical features of the country. The branch line was not located but the preliminary surveys showed that the best location as regards length, grades and capital cost would be from a point on the main line near M.P. 225.

Grade Reduction North Bay to Liskeard.

The subject of grade reduction on the first division between North Bay and Liskeard has received careful study. After the thorough examination of a wide belt of territory adjacent to the main line, cut offs have been located as follows:—

North Bay to Mileage 35.
Mileage 48 to Mileage 50.
Mileage 62.5 to Mileage 66.4.

In each case the cut off as located is a material improvement over the operated line as regards length, curvature and grades. Complete plans, profiles, and estimates of cost of construction for these cut offs are being prepared. Also estimates of the reduction in operating expenses that might be brought about if the cut offs were to be constructed.

Cut Off—Mileage 60 to Mileage 61.

A cut off 2,067 feet in length was located and constructed between M.P. 60—M.P. 61. By means of this cut off at a very moderate expense the operated line was shortened by 72 feet and 66 degrees of sharp curvature were eliminated. The grading for this cut off was done under contract by Alex. Avery. Track laying and ballasting was done by the Commission.

Cut Off—Mileage 228.

A large quantity of material was required for trestle filling and widening embankments to complete the McRae, Chandler and McNeil contract. By properly locating the steam shovel pit from which this material was excavated it was possible to re-locate the main line through the steam shovel cutting, shortening it by 237 feet and eliminating 32 degrees of curvature.

Right of Way.

During the year all the right of way, station grounds, and other property of the Commission was carefully checked over and a series of right of way plats were prepared on which is recorded every parcel of land in the possession of the Commission. All necessary plans and descriptions to accompany deeds and leases were prepared. In September, Mr. H. J. McAuslan, O. L. S., for over four years the Commission's Land Surveyor, resigned his position to engage in other work.

Ballast Pits.

The lack of a plentiful supply of good ballast was the reason for a search for proper ballast pits. Two new pits were located and purchased at Cassidy and Nellie Lake respectively. Spur lines into each of these pits have been located but only the Cassidy pit has been opened. The opening of these pits will permit a great improvement in the quality of the ballast in the track.

Liskeard Spur.

The grading of the Liskeard Spur was completed by Canadian Contracts Limited, Contractors.

Double Tracking.

During the year the double tracking of the railway from Cobalt to Haileybury was completed. The grading between Cobalt and North Cobalt was done under contract by S. McGar. The remainder of the work was done by Company forces.

Cochrane Terminals.

During the year the eight stall roundhouse and machine shop and the bunk room and petty stores building were completed by the Contractors, the Forest City Paving and Construction Company, and put in service. The coaling station being built by the same company was not completed in time for service this year.

The present sidings are sufficient to handle the freight traffic until the completion of the National Transcontinental Railway, when the large permanent terminal freight yard will be built.

Water Supply.

North Bay Jct.—A new water service has been designed for North Bay Jct. to consist of a 50,000 gal. steel tank and a 10 inch locomotive stand pipe. The contract for the steel tank was awarded to the John Inglis Co. The new water service is now being installed and will be completed about Dec. 1st, 1910.

Swastika.—A hydraulic ram installation has been made on the rapids on the Blanche River to supply the water tank at Swastika. This avoids the expense of maintaining a steam pumping station.

Track.

The Commission's policy of maintaining smooth and safe siding track has been continued. To this end during the year twenty-eight miles of track were recentred and the curves were fitted with suitable easements. During the year, 200,000 yards of ballast were placed under the tracks. Of this, 81,000 was on construction account to complete the ballasting between Matheson and Cochrane, while the balance, 119,000 cu. yds. was on Maintenance account.

Sidings and Yards.

Increased siding accommodation has been provided at Tomiko Mills, Tomiko, Temagami, Cobalt, and Kelso, thus enabling traffic to be more expeditiously and economically handled.

Station Buildings.

Cobalt.

The new brick passenger station was completed, S. F. Whitham, Contractor.

Haileybury.

Lavatories for men and women were installed and connection was made with the Town water and sewerage systems.

Liskeard.

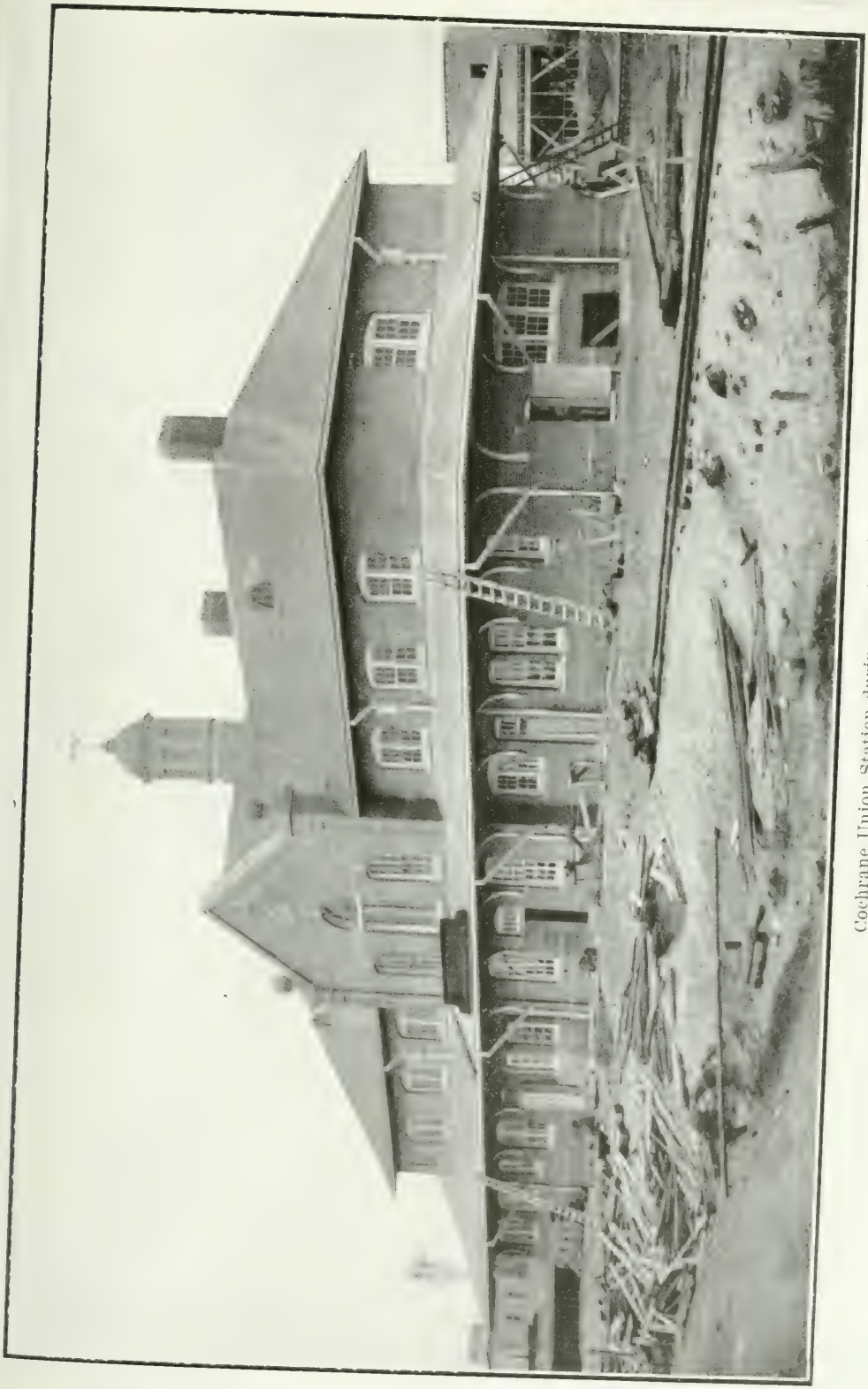
The lavatories were connected with the Town sewerage system.

Kelso.

A frame combined freight shed and passenger station is under construction. The Haileybury Construction Company are the contractors.

Cochrane.

The new brick passenger station is approaching completion. O'Boyle Bros. Construction Company, contractors.



Cochrane Union Station during construction.

Section and Station Agents' Houses.

Frame cottages for unmarried section men were built at Bushnell, Redwater and Temagami, by the Cobalt Equipment Co., contractors.

Standard frame section houses with concrete foundations were built at Gillies, Uno Park, and Charlton by Messrs. Snyder and Robertson, contractors.

The station agent and section foreman's houses at Cobalt were connected with the newly installed town water works.

The station agent's and section foreman's houses at Haileybury were fitted with plumbing fixtures and connected with the town waterworks and sewerage systems.

Bridge Department.

During the year all bridges, trestles, and culverts were carefully and systematically examined and all repairs necessary to enable the operation of trains at schedule speed and to prevent deterioration of the structures were made as promptly as possible. A landslide at the north approach of the timber trestle at Mileage 119.13 on the night of Dec. 4th, 1909, derailed a freight train. The slide on the derailed train tore down about 100 ft. of the trestle, but no person was seriously injured. Since then this timber trestle has been replaced by a steel trestle. With this exception there were no accidents at bridges or culverts.

The following steel bridges received one coat of paint:

North Bay Yard—Chippewa Creek

Mileage, 7.96
„ 11.48
„ 30.97
„ 59.16
„ 65.63
„ 93.87 (Floor system only)
„ 137.92 (North and south approach spans).
„ 145.75 (South approach span only).

Charlton Branch—Blanche River.

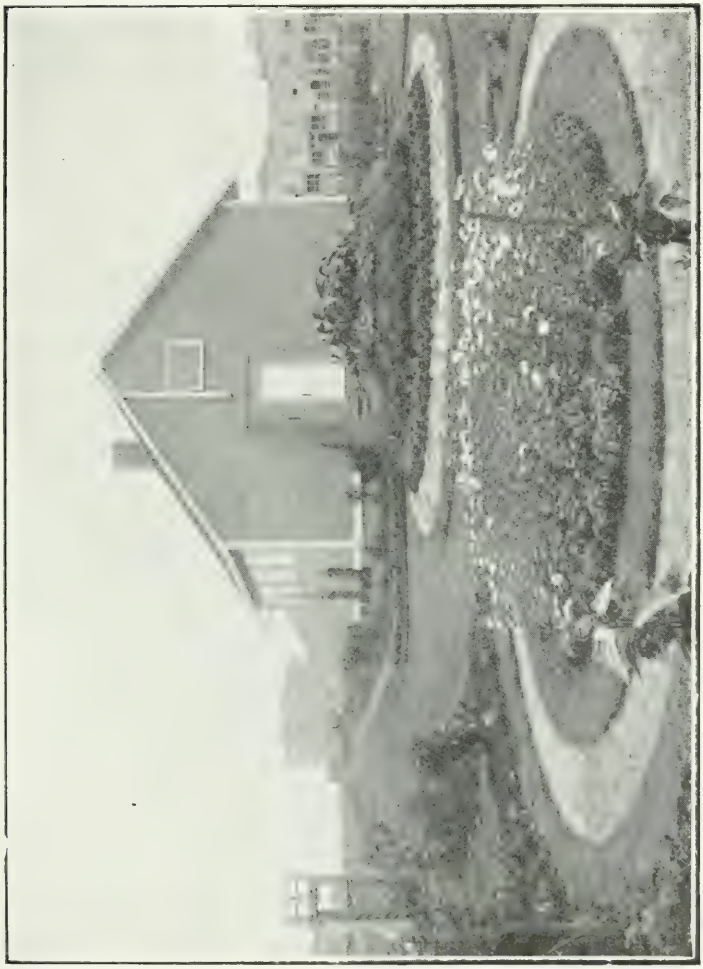
The timber deck on steel bridge at Mileage 65.63 was renewed.

The masonry abutments of steel bridges were repaired as follows:—

Mileage, 30.97 abutments pointed and ballast walls completed.
„ 59.16 „ „ „
„ 65.63 ballast walls completed.
„ 93.87 abutments pointed.
„ 137.92 „ „
„ 145.75 „ „

The following repairs were made to timber trestles:

Mileage, 25.71 New pile bents, ballast walls, caps, girths and braces, and surfacing and lining.
„ 42.18 New pile bents, ballast walls and stringers, and surfacing and lining.
„ 48.90 New piles and surfacing and lining.
„ 53.84 New ballast walls, stringers, girths and braces, and surfacing and lining.



Flower beds—Englehart.

Mileage,	55.36	New caps, stringers and braces, and surfacing and lining.
„	55.94	New caps, stringers, ballast walls, braces and girths, and surfacing and lining.
„	57.31	New ballast walls, stringers, girths, and braces and surfacing and lining.
„	58.75	New ballast walls, stringers, girths and caps and surfacing and lining.
„	59.11	New ballast walls, stringers, girths and braces, and surfacing and lining.
„	68.71	New girths and braces, surfacing and lining.
„	69.91	New bents, surfacing and lining.
„	70.21	Surfacing and lining.
„	71,37	New piles, caps and braces, and surfacing and lining.
„	75.14	Surfacing and lining, new caps, girths, braces, and ballast walls.
„	153.50	New bents, girths and braces, surfacing and lining.
„	162.08	Surfacing and lining.
„	163.13	New bents, stringers, girths and braces, surfacing and lining.
„	168.50	New ballast walls, girths and braces, surfacing and lining.
„	175.00	New ballast walls, caps, stringers, girths and braces, surfacing and lining.
„	178.90	New ballast walls, caps and stringers, surfacing and lining.

Charlton Branch.

Mileage,	1.25	New deck, caps and braces, and surfacing and lining.
„	6.25	Surfacing and lining.

Kerr Lake Branch.

Mileage,	4.75	New caps, girths and braces, surfacing and lining.

In order to avoid the ever-recurring expense of surfacing and lining and renewing the timber structures, these are gradually being replaced by permanent steel and concrete structures. During the year the following timber structures were replaced by permanent structures or embankments:

Mileage,	50.81	Trestle replaced by embankment.
„	62.23	Trestle replaced by embankment.
„	75.44	Trestle two-thirds replaced by embankment.
„	119.13	Trestle replaced by steel trestle 480 feet long.
„	184. 4	Trestle replaced by plate girder span 55 ft. long.
„	34.13	Beam Culvert, timber deck replaced by concrete steel deck.
„	224.5	Beam Culvert, timber deck replaced by concrete steel deck.
„	46.37	Beam Culvert, replaced by 7 ft. concrete culvert.
„	47. 1	Beam Culvert, replaced by 30 in. concrete tile.
„	60.61	Beam Culvert, replaced by 6 ft. concrete culvert.

The overhead crossing at Cobalt was partially burned at the time of the Cobalt fire. Under agreement with the Town of Cobalt and the Township of Coleman, the burnt portion of the trestle was repaired and new foot walk at one side of the trestle was built by the Commission. The double tracking of the main line necessitated the renewal of one of the bents of the trestle and a timber truss was substituted for two stringer spans.

The following new culverts were built:

Mileage, 29.5 30″ concrete tile.
" 102.3 30″ " "
" 149.74 4′ Cedar Box.
" 180.75 Cedar Box.
" 202.5 " "
" 215 " "
" 216 " "

Charlton Branch:
Mileage 4.7 " "
" 5.0 " "
" 5.25 " "

The 75 ft. turntable for the new Cochrane Roundhouse was installed. Improved ball-bearing centres were substituted for the old disc bearings on the North Bay Jct. and Englehart turntables. These turntables are now giving good service.

Temporary Cinder Pits were installed at Cobalt and Cochrane.

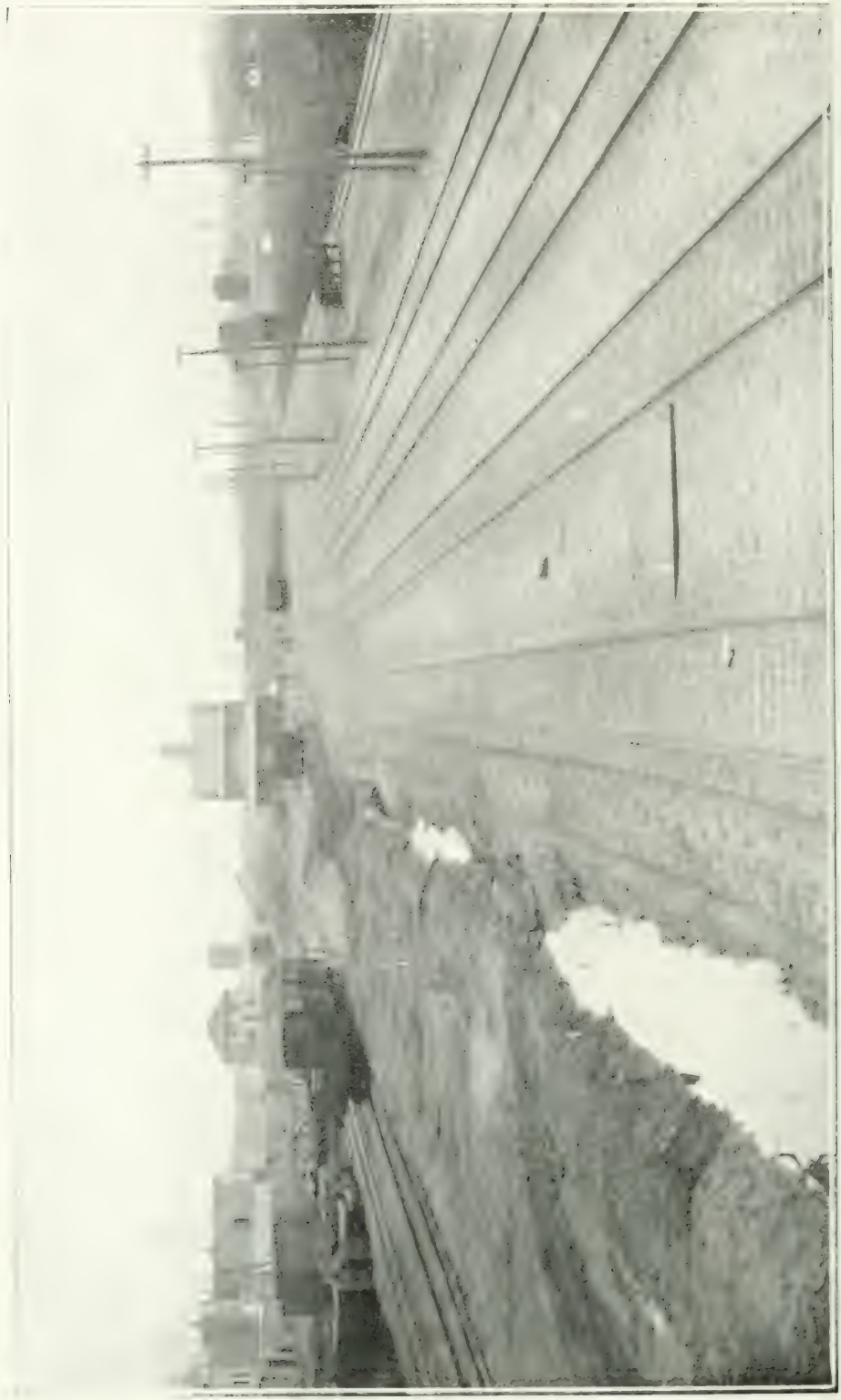
The following table shows the aggregate length and nature of bridges, for October 31st, 1910, compared with previous year:

	Main Track.				Branch Lines.			
	Oct. 31st. 1910.		Oct. 31st, 1909.		Oct. 31st, 1910.		Oct. 31st, 1909.	
	No.	Length.	No.	Length.	No.	Length.	No.	Length.
Steel Bridges	15	3,777.05′	14	3,296.3′	2	120′	2	120′
Masonry Bridges	1	20	1	20	....	.....	....	.....
Wooden Trestles	22	5,430.	25	6,687	3	1,219	3	1,219
Wooden Culverts with I-Beam Decks	39	533′	37	498′	....	.....	....	.....
Timber Trestle replaced by embankment	3	724′	2	307′	....	.....	....	.....
Timber Trestle replaced by steel bridge	1	476	1	138	....	.....	....	.....

COMPARATIVE TABLE OF CURVATURE—1909–1910.

Year.	1° curve.	2° curve.	3° curve.	4° curve.	5° curve.	6° curve.	Total.
1909	816° 02′	1,925° 46′	1,783° 15′	3,243° 21′	1,459° 15′	4,225° 37′	13,453° 16′
1910	821° 39′	1,963° 50′	1,748° 57′	3.189° 00′	1,459° 15′	4,172° 22′	13,355° 03′
					Eliminating		98° 13′

Description.	1910	1909
Track Centres with easements	30.0 miles	15 miles.
Track Ballasted	154. "	.....
Main Track replaced with new 80-lb. steel	7.25 "	7.75 "
Second Track constructed	2.9 "	1.13 "
Private Sidings and spurs constructed	.8 "	.....
Passing and Yard sidings constructed	5.01 "	.....



Cochrane yard.

Description.	1910. Aggregate Length.	1909 Aggregate Length.
Second Track	5.03 miles.	2.13 miles.
Main Line	252.3 "	252.3 "
Branch Lines	13.24 "	13.34 "
Passing Sidings, etc	61.71 "	55.77 "
Private Sidings	12.8 "	12 "

I desire to testify to the faithful and efficient service that has been rendered by the members of the staff of the Engineering and Bridge Departments.

Mr. John M. Lyle of Toronto was retained as architect in connection with the construction of the new stations at Cobalt and Cochrane, and prepared the plans for a new station at Matheson.

Mr. Cecil B. Smith was retained as Consulting Engineer, and his advice was obtained on all important engineering questions that arose.

Yours truly,

(Signed) S. B. CLEMENT,

Chief Engineer.

ANNUAL REPORT OF J. H. BLACK, SUPERINTENDENT.

Beg to submit herewith annual reports of the General Roadmaster, Building Master and Acting Master Mechanic, for the year ending October 31st, 1910.

It is satisfactory to report that we have been free of accidents of any serious nature, and have continued under Providence the record of not having lost the life of a passenger.

During this period, our efforts were as follows:

	Northbound.	Southbound.		
Passenger Trains	2,803	2,800		
Freight Trains	1,701	1,729		
Mixed Trains	314	314		
Non-revenue Trains	90	70		
Work Trains	.....	.....		969
Total	4,908	4,913		969
Total Trains			10,790	

	Northbound.	Southbound.	
Loaded Cars	21,321	10,201	
Empty Cars	3,611	14,675	
Total	24,932	24,876	
Total Cars			49,808

The following list of accidents and derailments occurred during the year.

1909.—November 5th, Michael Giamfranesio fell off a car at Mileage 221, ex. 117, and was instantly killed.

November 6th, Train No. 37 struck and killed a heifer at Temagami.

November 18th, No. 1/33 struck and injured J. O'Rourke at Muggsley Siding, Cobalt.

November 19th, train No. 10 struck and injured J. Comian at Mileage No. 104.

November 20th, while turning car at Mileage No. 131, J. Lavory's finger was taken off.

November 25th, Train No. 46 struck rear end of ex. 122 at Temagami, damaging Van No. 63, C.P. box No. 22,464 and C.P. No. 187,498, and baggage car No. 21.

December 5th, Tender of Engine 130, C. P. No. 31828 and Van No. 69 went through trestle at Mileage No. 119½, due to land slide.

December 15th, Brakesman Clifford McLean was jerked off car at Cassidy, and was badly bruised.

December 21st, T. & N. O. flats 60,095 and 60,213 ran into Engine 131, at Mileage 10½, displacing lumber in cars.

December 24th, Mail and Express Car No. 25, Train No. 1, was burned at Mileage No. 62. Cause unknown.

December 28th, W. Anderson, while attempting to board train No. 2 at Temagami, fell under train and sustained serious injuries, resulting in death.

December 30th, F. J. Kelland had eye injured in North Bay Junction shop, while chipping a tire, and has since lost the sight.

1910.—January 1st, Conductor J. Donaldson fell through plank walk at Englehart, sustaining severe shaking up.

January 10th, Conductor A. Rouble fell off car on to draw-bar, at Tomiko, injuring left arm and hip.

January 10th, A. Tomesi, while loading rails at Mileage No. 52½ lost his footing—rail that he was throwing fell, injured right wrist and scratched face.

January 11th, rail fell on foot of D. Camegliano at Mileage No. 15½, bruising large toe.

January 15th, Brakesman G. Lee, at North Bay, had two fingers jammed between drawbar and buffer beam of car.

January 15th, Car G. T. No. 7,035 was derailed at Mileage No. 42.

January 25th, while unloading lumber at North Bay Junction, piece of timber fell on B. Cipparone's foot, injuring toes, no bones broken.

January 25th, Conductor H. Thomas slipped down steps at Cobalt office and sprained ankle.

February 3rd, J. Cundari fell into Culvert M. P. No. 149¾ while fighting with L. Scuggato and sustained severe shaking.

February 8th, Tender Engine No. 107, train No. 1, and all cars left track, M. P. No. 186½. No passengers injured.

February 10th, Drawbar of Engine No. 102, at North Cobalt, fell on to rails, causing derailment of four cars.

February 11th, Fred Hartley struck by wing of snow plough at Mileage No. 10¼, instantly killed.

February 14th, Ex. No. 129 struck hand car, injuring large toe of D. Bisonte.

February 22nd, Ex. No. 106 struck R. Heaton at Mileage No. 104½, breaking arm.

February 23rd, at Haileybury, Train No. 2, H. McDonald had leg taken off by train, injuries resulting in death.

February 24th, M. Armienti injured finger while pulling out spikes at Bushnell.

February 25th, at Englehart shops, piece of wire struck C. Mold, cutting eye ball.

March 6th, fourteen cars were derailed at Gillies, caused by broken truck on C. P. Car No. 35,874.

March 9th, at Redwater, root projecting from gravel train struck and slightly injured H. Dredge.

March 10th, at Haileybury, Train No. 47 struck and killed George Prentice.

April 7th, at Englehart, Fireman Geo. Carnall fell between two cars, on rail, and was run over, causing loss of left arm and injury to breast.

April 18th, at M. P. 95, Ex. No. 103 struck and killed a pig.

On the morning of April 18th, S. Latrielle was found dead on track at North Bay Junction.

April 28th, at M. P. 106, Train No. 47 struck and killed cow owned by J. Fleury.

May 4th, at M. P. 204½, three cows struck and killed by Ex. No. 105; two owned by H. V. Cartwright and one by J. Johnston.

May 9th, Guiseppi Ricci slightly injured by hand car leaving track seven poles south of M. P. No. 109.

May 15th, Tool car T. & N. O. No. 60,189 burnt at Uno Park, cause unknown.

May 16th, at Temagami, E. Franceshine fell from top of car to ground while engine was coupling cars.

May 18th, at Uno Park, W. Boyce injured by block falling from trestle.

May 20th, at M. P. 172½, Train No. 1 derailed. Auxiliary called from Englehart. Track blocked eight hours. Three passengers slightly injured. Three coaches and engine off track.

May 23rd, at M.P. 10¾, V. Gasdo, while loading rails, had hand jammed.

May 26th, Swanson's Cut, land slide, at M. P. 149. Sixty feet in width and eighty feet long, five feet deep, on track. Estimated displaced 900 cubic yards of material. Caused by heavy rains, bad clay, and quick sand. No damage to equipment or rolling stock.

May 28th, at M. P. 239, Conductor J. T. Nidd slightly injured by work extra 124 stopping suddenly.

June 9th, at Haileybury, Train No. 33, Brakesman J. Cunning had toes crushed while unloading freight.

June 21st, Brakesman M. Downey, head injured as result of leaning out to watch runaway team—switch lamp striking his head.

June 29th, M. P. 137½, Train No. 47, unknown man struck and injured.

July 7th, at M.P. No. 104, Tonio Petronia's toe jammed by rail falling while unloading lorrie.

July 7th, at M. P. 51½, Ex. No. 115 struck and killed a moose.

July 8th, North Bay shops, John Roy struck on head with hammer, not serious.

July 21st, at M. P. 52, P. Dasti was slightly injured, slipping when unloading cinders.

July 21st, Train No. 1 struck and killed a horse owned by W. Monahan of Matheson.

July 25th, C. P. R. engine backed into our train No. 1, C. P. R. Yard, North Bay, damaging our engine No. 151, coaches Nos. 2 and 8, and mail car No. 3.

July 28th, while assisting an intoxicated man, Rev. C. E. Bishop, of North Bay, had his hand caught between the vestibules of coaches and slightly injured, train No. 1.

July 30th, at M. P. 104, Train 49, Chas. Cousineau was struck and killed.

July 30th, at North Bay, train No. 47. Cow struck.

August 25th, Engine No. 152, struck by train No. 49, engine No. 110, at Cobalt—Engineers McKaig and Hill suspended, thirty days.

August 28th, Brakesman A. Lovatt had thumb jammed between vestibules of coaches, train No. 1, C. P. R. Yard, North Bay.

August 30th, at Temagami, Train No. 46, Andrew H. Reid, of Toronto, while attempting to board moving train, missed his footing and fell, train running over and severing left arm.

August 31st, T. & N. O. flat car No. 60435 was destroyed by the C. P. R. at the Humber. C. P. accepted bill for $164.35, depreciated value.

September 3rd, Dump gave way at Cobalt Lake, submerging four cars and gravel plow. Equipment all recovered except plow.

September 10th, at M. P. 96½, Train No. 6, pig owned by E. B. Smith was killed.

September 30th, cars G. T. Nos. 46233 and 7987 derailed 13 poles north of M. P. No. 215, caused by brake beam dropping and trailing seven poles. Sixty ties broken; estimated damage, $28.18.

October 8th, Haileybury, cow injured by Ex. No. 123, belonging to Rebecca Barofsky.

October 17, at North Cobalt, Gilda Matte, under influence of liquor, was injured while attempting to board train No. 1.

October 19th, at M. P. 200, Ex. 123 struck and killed a pig, owned by Mr. Geo. Lahrivy.

October 23rd, at Liskeard, Train No. 46 struck and killed a cow, owned by Mr. Z. Hurl.

October 24th, at North Cobalt, Train No. 1 struck and killed a cow, owner unknown.

During the year Kelso station was opened and equipped with telegraph instruments, for railway and commercial business.

Temporary offices were opened at ballast pits, at following points:

Mileage 17.
Redwater.
Nellie Lake.
Mileage 25.
Rabbit Creek.
Mileage 75.
Wabuyloss.
Cochrane Junction Diamond.

Three offices were closed on completion of season's work.

Wires were carried into new station at Cobalt with 267 feet 20 conductor lead cable in underground conduit. At Nipissing Central overhead bridge 108 feet of lead covered cable, twenty conductor, was strung through bridge to protect wires.

In the re-construction of telegraph and telephone pole lead 1st division, the number of poles per mile were increased from 32 to 40, requiring an additional amount of new line material, crossarms, pins, insulators, braces and lag screws. Seventeen hundred six-pin crossarms were transferred from old poles to new lead as well as 1,850 new six-pin arms. All poles on curves are well guyed with seven-strand wire, fastened by galvanized clamp to half-inch galvanized anchor rods.

Provision has been made on second division, between Englehart and Cochrane, for future increase of business, an extra gain cut on poles, and four-pin crossarm attached. Two hundred and thirty miles (48,500 lbs.) of No. 9 B. & S. gauge copper wire has been purchased, now on hand, and 10,000 insulators.

The intentions are to string this for either telegraph or telephone service, as circumstances may demand.

Telegraph and telephone line re-construction has been carried on during the summer, 36 miles of new pole lead constructed, with provision made for 18 wires. These wires have been transferred to new lead and old poles removed. The two No. 10 copper wires, which were strung from North Bay to Temagami during 1909, and extended to Liskeard and downtown offices for long distance telephone service, were opened at Haileybury and Liskeard.

During the year party telephone lines were installed as below, with connection to nearest station, where long distance communication can be had to all points with Bell Telephone System:

Feronia and DeLaplante Lumber Co., M. P. 20½, with connections at North Bay, Tomiko Mills.

Ferguson & McFadden's office and Hawkesbury Lumber Co., Jocko, with connection at Tomiko station.

Bushnell with Diver.

Redwater with Doherty.

Black & Wagar and Rib Lake, with connection at Temagami.

Johnson & Gillies' Depot, with connection at Latchford.

Between Englehart and Cochrane general repair of line has been made and extra four-pin crossarm placed to accommodate future requirements. During the year 13 telephones were installed, making in all 30 telephones in commercial and nine in railway service. On Oct 31st, 1910, 1,660 miles of wire were in service.

No serious delays during the year were caused to either telegraph or telephone business outside of ordinary wire trouble.

During the year passenger service was installed on Kerr Lake Branch, resulting in considerable traffic from outlying connections to Cobalt and return. At present there are two daily trains each way. On Wednesdays and Saturdays an extra train.

Time table changes have been made to meet requirements of summer and winter travel. Table No. 16 made effective May 8th, 1910; table No. 17, effective June 26th, 1910; table No. 18, revised and in effect Sept. 25th. The present time table shows trains No. 1 and 2 daily between North Bay and Cochrane. Trains 46 and 47 daily between North Bay and Englehart with interline service over the G. T. to Toronto. We have also local passenger trains running between Englehart and Latchford, numbered as follows: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 13. Daily connections are made on Charlton Branch on arrival of No. 1, with contemplated additional service. During summer months trains No. 48 and 49 were run with interline connections over the G. T. and T. & N. O., for benefit of tourist traffic.

Bachelor Section House—T. & N. O. Ry.

New standard weigh scales have been purchased and will be installed at Englehart in addition to those now in use at Latchford and North Bay Junction.

During the year this Railway has become a member of the Bureau for the Safe Transportation of Explosives and other inflammable merchandise. This Bureau is operated in connection with American Railway Association with the object of reducing to the minimum fires and explosions which might be incidental to the handling of such articles as dynamite, black powder, fuses, etc. This privilege affords the Railway the benefit of visits from their Inspectors, on an average of four times a year, and with the standards adopted by the Bureau for the prevention of such accidents.

The local agents of this Railway meet once each month for the purpose of informally discussing matters pertaining to improvements and standardization of work. Many good thoughts have thus been formulated and the interest shown is sure to be of large advantage to all interests.

On May 1st a new system of time-keeping and accounting was adopted, whereby time records and pay-rolls were centralized under one office. This has effected a saving in the numbr of time-keepers employed under the departmental system, and allows more uniform practice than heretofore. The system has been in vogue sufficent length of time to have demonstrated its advantage over the old system, and is working well.

At Kelso, new station has been opened, replacing the temporary accommodation provided during the fall of 1909.

The standard rules adopted by the Dominion Railway Commission for uniform operation of trains has been adopted, rule books prepared and competent instructor at present engaged in the necessary work, prior to examinaton of employees. When employees in transportation service are familiar with the work, the standard code will be put into effect.

During the year there was very heavy work train service, improving embankments, bridges, culverts and right of way, report of which is given elsewhere.

During month of May, Master Mechanic, Mr. A. Allan, resigned from service, and was replaced by Mr. Thomas Ross, Locomotive Foreman, as Acting Master Mechanic.

The details of new equipment, received and in hand for delivery, also special work performed by various departments, are dealt with under the Departmental reports.

Attached to this report are statements from Accounting Office, showing performance of locomotives during the twelve months ending October 31st, 1910, also a distribution of expenses under the headings of Road and Building Departments.

ANNUAL REPORT OF BUILDING DEPARTMENT FOR FISCAL YEAR. November 1st, 1909, to October 31st, 1910.

J. J. O'NEILL, BUILDING MASTER.

General Offices, North Bay.

The first and second floors of this building were cleaned and kalsomined. Two rooms, 8 x 10 feet, were made in attic, one for the F. and P. A., the other for the use of the Engineering Department. A new iron pipe fence built around the grounds.

Freight Shed, North Bay.

Two rooms, 30 x 30 feet, were partitioned off in the building, one for storing Engineer's outfit, the other for storing commissary.

Terminals North Bay Junction.

Carpenter Shop.

For the Road Department, we have made in the shops 110,000 shims. Great care has to be taken in the making as the sizes vary, each shim containing from two to four holes. Have also made for this department, hand cars, lorries, cattle guards, sight boards, switch targets, tie plugs, tool boxes, sleighs, woodwork repairs to work equipment, etc., also fitted up all boarding cars used by them on the road.

We have made for the mechanical department all the woodwork repairs to coaches, locomotives, baggage cars, vans, box and flat cars and foreign cars. All necessary patterns for this work have been turned out at the shop.

All lumber for the stores department has been handled by our staff at the shop. We have received for them 716,612 feet, and turned over for consumption 551,231 feet, making in all 1,267,843 feet handled during the year. A great quantity had to be again re-handled in order to convert in V-joint, cove siding, shiplap, flooring, etc., all of which done at the shop. Have manufactured for this department, ladders, gang planks, bulletin boards, tool boxes, conductor boxes, transfer boxes, station seats, tables, ticket cabinets and filing cabinets.

Machine Shop and Roundhouse.

The interior of building whitewashed and exterior grouted with cement wash. The smoke jacks were equipped with asbestos dampers, and two columns strengthened with re-inforced concrete. Installed in machine shop one large boring machine, one lathe, one machine for finishing locomotive links. Three of the boilers were completely overhauled.

Old Machine Shop.

In order to get more light into building it was found necessary to put in ten skylights, 8 x 10 feet. Old blacksmith shop attached to building was torn down.

Coal Chutes.

Hogsbacks were installed so as to assist the delivery of coal to the engines and new steps put up at east end of the chutes.

Stations.

The stations North Bay to Cochrane were given special attention, and everything done to make surroundings agreeable both to public and staff.

Trout Lake.

A new door was put on, and general repairs made.

Widdifield.

Interior cleaned and varnished, platform extended 172 feet and coal bin straightened and painted.

Tomiko.

In order to have Agent's office private, door leading in was cut so as to open in two parts. Platform extended to tank, distance of 40 feet.

Diver.

The interior cleaned and varnished, and door leading to Agent's office treated in same manner as one at Tomiko.

Redwater.

Few light repairs.

Temagami.

Swinging doors placed over cellar windows.

Latchford.

Agent's office and waiting rooms cleaned and varnished.

Cobalt.

Following signs were made and placed opposite respective rooms:—1, General Waiting room; 2, Baggage room; 2, Parcel room; 2, Ladies' Waiting room; 10 station seats made by our forces at North Bay Junction and installed. Quarters for the Canada Railway News Co. were made in north end of general waiting room. Battery shelving, train order signal, bulletin boards and coal house also installed in connection with the building.

North Cobalt.

Nothing outside of general repairs.

Haileybury.

Door beside the telegraph office closed up and placed further towards smoking room, in order to make room for additional ticket case.

Liskeard.

Both waiting rooms and Agent's office cleaned and varnished.

Uno Park.

General repairs.

Thornloe.

A portion of waiting room set apart for an office for Agent by partitioning and installing counter and shelving. Ticket window was also put in.

Earlton.

Interior cleaned and painted and a concrete floor put in cellar.

Heaslip.

Building altered same as at Thornloe.

Englehart.

Agent's dwelling in upper part of building papered and kalsomined, as well as living rooms in connection with restaurant.

Dane.

All doors overhauled and kitchen painted.

Matheson.

Ceiling raised two feet and interior sheeted with 7-8 inch material and painted. Counters, shelving and cupboards installed. Two extra windows and two new doors were put in and exterior painted. Coal house, 14 x 20 feet, built. Moved old coal dock and with material built sidewalk from station to town sidewalk and put turnstile in at the junction.

Cochrane.

General repairs.

Charlton.

Set aside portion of building for baggage room and put in an office, also built coal house, 14 x 20 feet.

Kerr Lake.

Freight shed divided into four living rooms, 10 x 15 feet, and an office, 10 x 20 feet. The building was opened up as station, and division made for the comforts of Agent. Platform extended 20 feet and covering put over it.

Freight Sheds.

Feronia.

The exterior of building painted and pedestals straightened.

Latchford.

General repairs.

Cobalt.

Our staff equipped new freight shed office with all necessary counters, desks, cabinets and shelving. Cashier's desk enclosed with a nice iron cage, 6 x 8 feet, and half glass partition built right across entire office separates the public from staff. An office, 10 x 12 feet, with half glass partition set aside for Agent in northwest corner. The following other offices and rooms were built in freight shed:—customs' office, 10 x 12 feet; foreman's office, 12 x 14 feet; lost freight lockup, 14 x 11 feet; stationery room, 16 x 16 feet. A sidewalk 400 feet long built from freight shed to Haileybury road. Platform scales were installed.

Haileybury.

General repairs, and platform scales installed.

Liskeard.

Interior was sheeted with 3-8 inch material and painted. For convenience of the public in loading and unloading freight, two new doors were put in north end of building. Platform scales were installed.

Cochrane Roundhouse and Stores Building.

Heaslip.

Building converted into a station by dividing into an Agent's office and waiting room. Whole of the interior sheeted with pine, new floor laid and office 8 x 15 feet equipped for Agent.

Swastika.

Platform was extended 40 feet.

Englehart.

Platform scales installed.

Tanks.

The tanks along the line were inspected regularly and repairs made where necessary. Shingles removed from the roofs and replaced with a metallic iron roofing. Coal bins in connection therewith were clapboarded and painted.

Tank at Temagami was moved across the track and now rests on concrete piers built on solid rock.

The one at Liskeard completely overhauled and painted two coats of our standard red paint.

Dwellings.

Interior of Agent's and section houses from North Bay to Liskeard were cleaned, kalsomined and painted.

Woodshed 14 x 20 feet was built at back of each section house.

An extension 13 x 19 feet was put to kitchen at Widdifield.

At Latchford, Cobalt, Dane and Matheson summer and winter kitchens were converted into one by sheeting the summer kitchen and cutting an arch between the two. All section house kitchens north of Englehart were equipped with galvanized iron chimneys.

New concrete floor was put in the Agent's house and section house at Haileybury.

From material taken from Cobalt station platform sidewalk, 6 x 1,600 feet, was built from the section house along Commission street.

Roundhouses.

Roundhouse at Englehart was whitewashed on the inside, and on the outside grouted with cement. Windows and doors were overhauled and painted. New asbestos dampers were placed in smoke jacks, and new tool room built for Master Mechanic.

At Cochrane we installed necessary shafting, fitted, glazed and painted the storm sash.

Other Buildings.

Englehart.

Relaid concrete floor in the oil room of Stores building.

Installed [illegible] to coal chutes, renewed roof of building and painted.

Built new coal house and installed the necessary piping.

Cochrane.

With 6-inch pipe we connected sewer of bunk room with septic tank.

Installed all the trim, shelving, counters and desks in new stores' building.

All buildings were equipped with the necessary fire fighting appliances, and great care was taken to see that they were placed in the safest and most convenient spot.

All dwellings and stations were furnished with storm sash and storm doors, screens and screen doors, and same were put in place, in season.

At Redwater, Cassidy and Wataybeag three boarding camps were built for the men to live in, while working at the pits.

(Signed) J. J. O'NEIL,
Bridge and Building Master.

Report of Expenditure of the Building Department from November 1, 1909, to October 31st, 1910.

Maintenance of Way and Structures.

Superintendence	$342 09
Other track material	167 97
Roadway and track	660 52
Removal of snow, etc.	35 45
Bridges, trestles and culverts	26 94
Telegraph and telephone	19 67
Roadway tools and supplies	34 88

Buildings, Fixtures and Grounds, First Division.

North Bay, general offices	44 30
North Bay, company's houses	189 28
North Bay Junction, stores building	112 07
North Bay Junction, coal chutes	145 32
North Bay Junction, carpenter shop	73 68
North Bay Junction, machine shop	62 37
North Bay Junction, roundhouse	133 24
North Bay Junction, car shop	120 92
North Bay Junction, Building Inspector's office	22 83
North Bay Junction, Master Mechanic's office	8 26
North Bay Junction, removing wrecked sand house and water tank	39 17
North Bay Junction, cinder hoist	10 10
North Bay Junction, oil house	5 50
North Bay Junction, blacksmith shop	10 00
North Bay Junction, paint shop	22 20
North Bay Junction, road department store shed	15 65
North Bay Junction, track scales	7 75
North Bay Junction, station platform	3 05

North Bay Junction, freight shed	83 50
North Bay Junction, motor car house	2 00
North Bay Junction, bridge and building department, speeder	14 09
North Bay Junction, bridge and building department, boarding cars	22 10
North Bay Junction, storm sash on buildings along line	66 59
North Bay Junction, storm doors and windows	51 70
North Bay Junction, removing doors and windows	86 25
North Bay Junction, painting mail boxes along the line	3 50
Trout Mills, station	7 44
Feronia, freight shed	18 00
Widdifield, station	51 30
Widdifield, tank	119 01
Widdifield, section house	29 50
Mulock, section house	6 75
Tomiko, station	18 15
Tomiko, tank	168 93
Tomiko, section house	15 25
Jocko, section house	2 50
Diver, station	49 50
Otter, section house	7 81
Bushnell, section house	34 92
Redwater, station	12 90
Redwater, tank	168 17
Redwater, section house	28 10
Doherty, section house	5 25
Temagami, station	26 35
Temagami, tank removal	867 97
Temagami, tank repairs	97 95
Temagami, Agent's quarters	38 50
Temagami, restaurant	13 10
Temagami, section house	34 50
Rib Lake, section house	19 25
Johnson, section house	20 00
Lakeford, station	64 50
Lakeford, platform	12 50
Lakeford, tank	78 60
Lakeford, Agent's house	62 80
Lakeford, stable	19 90
Lakeford, section house	96 13
Lakeford, hand car house	3 00
Gillies, station	20 75
Gillies, platform	8 75
Cassidy, tank	65 42
Cobalt, station	86 96
Cobalt, Agent's house	164 77
Cobalt, freight shed	56 25
Cobalt, Mining Engineer's office	124 57
Cobalt, tank	26 50
Cobalt, hand car and oil houses	29 67

Colbalt, battery room	$5 00
Cobalt, telegraph office	5 00
Cobalt, yard office	20 00
Cobalt, cattle chute	10 75
Cobalt, sidewalk, Commission street	229 72
Cobalt, engine shed	2 50
Cobalt, section house	103 42
North Cobalt, station	15 00
Haileybury, station	30 55
Haileybury, platform	5 00
Haileybury, freight shed	32 75
Haileybury, scales	50 30
Haileybury, repairing fence	21 60
Haleybury, cattle chutes	10 00
Haileybury, Agent's house	67 00
Haileybury, section house	114 75
Liskeard Station	65 20
Liskeard, platform	16 20
Liskeard, tank	263 82
Liskeard, scales	52 10
Liskeard, freight shed	95 72
Liskeard, stock yard	10 50
Uno Park, station	18 25
Uno Park, platform	4 85
Thornloe, station	20 03
Thornloe, coal house	62 80
Thornloe, section house	30 31
Earlton, station	46 63
Earlton, platform	49 75
Heaslip, station	23 00
Heaslip, section house	36 05
Englehart, station	110 62
Englehart, Agent's house	19 50
Englehart, freight shed	18 75
Englehart, restaurant	11 25
Englehart, greenhouse	20 50
Englehart, sewer pipes	26 25
Englehart, closets	15 00
Englehart, cattle pen	8 57
Englehart, tank	7 50
Englehart, coal chutes	530 43
Englehart, roundhouse	314 56
Englehart, machine shop	119 90
Englehart, cinder hoist	36 95
Englehart, oil house	127 60
Englehart, signs for bridge	2 50
Englehart, tenement closets	6 50
Englehart, pump house	7 50
Englehart, section house	52 35

Second Division.

Krugerdorf, section house	$5 50
M. P. 151, section house	2 50
Dane, station	20 49
Dane, section house	108 75
Swastika, freight shed	2 50
Swastika, tank	95 00
Kenogami, section house	5 50
Sesekinika, section house	19 50
Bourkes, section house	3 00
Scotty's Springs, section house	8 50
Ramore, section house	5 50
Matheson, station	182 97
Matheson, freight shed	17 50
Matheson, tank	7 50
Matheson, pump house	7 50
Matheson, coal house	49 70
Matheson, section house	147 25
Watay beag, tank	11 75
Watay beag, boarding camp	2 75
Monteith, section house	5 50
Kelso, station	19 00
Iroquois, section house	5 50
Nellie Lake, section house	5 50
Nellie Lake, pump house	8 25
Holland, section house	2 50
Wicklow, section house	78 00
Wicklow, tool house	31 00
Cochrane, station	33 25
Cochrane, Agent's house	27 50
Cochrane, freight shed	5 50
Cochrane, tank	9 10
Cochrane, coad house	5 00
Cochrane, roundhouse	104 41
Cochrane, section house	53 50

Charlton Branch.

Charlton, station	5 00
Charlton, freight shed	23 82
Charlton, cattle chutes	5 00

Maintenance of Equipment.

Superintendence	332 10
Repairs to locomotives	1,282 55
Passenger cars, repairs	3,860 15
Freight cars, repairs	2,325 87
Work equipment repairs	1,168 62
Shop machinery and tools	492 07

Transportation Expenses

Station employees	$104 61
Station supplies, and expenses	52 84
Train supplies and expenses	183 04
Cleaning wrecks	23 37

General Expenses.

Office supplies and expenses	79 39

Special.

Clearing Account No. 52, stores department	4,740 51

Construction.

North Bay Junction, repairs to steam shovel	24 69
North Bay Junction, repairs to ballast cars	124 74
North Bay Junction, stakes for engineers	12 40
North Bay Junction, fitting up boarding cars	2 42
North Bay Junction, shop lavatory	20 81
North Bay Junction, sand house	135 43
Swastika, freight shed	202 15
M. P. 209, platform	49 60
Kelso, station	17 70
Cochrane, roundhouse	166 50
Cochrane, Engineer's camp	24 50
Cochrane Sand House	20 32
Cochrane Stoves	225 25
Cochrane freightshed	14 00
Cochrane septic tank	12 50
Charlton branch station	55 30
Charlton coal house	7 50
Charlton station seats	62 85

Additions and Betterments.

Parlor Cafe cars	21 30
Car, Sir James	5 50
Ladders for fire protection along line	29 32
Brackets for extinguishers	33 43
Boarding cars	14 84
New flanger	199 93
Pile pole handles	1 35
North Bay Junction, Installing resaw in carpenter shop	56 42
North Bay Junction, roundhouse	43 03
North Bay Junction, machine shop	77 07
North Bay Junction, drying rack	16 37
North Bay Junction, oil reservoir	5 50
North Bay Junction, fan, blacksmith shop	26 26
North Bay Junction, hogsbacks in coal chutes	94 37
North Bay Junction, stairs to coal chutes	14 00

Widdifield section house, kitchen extension	$111 25
Widdifield section house woodshed	57 55
Widdifield new platform	53 80
Mulock section house woodshed	49 80
Tomiko platform	32 80
Tomiko section house woodshed	51 65
Jocko section house woodshed	42 80
Otter section house woodshed	44 80
Bushnell section house woodshed	49 80
Redwater section house woodshed	96 29
Redwater boarding camps	234 80
Doherty section house woodshed	48 27
Temagami fire protection	2 50
Temagami section house woodshed	71 50
Rib Lake section house woodshed	49 27
Johnson section house woodshed	49 27
Latchford section house woodshed	47 70
Latchford section house chimney	7 00
Gillies section house woodshed	46 07
Cassidy boarding camps	216 65
Cobalt removing old station	186 40
Cobalt freightshed	289 00
Cobalt freightshed	288 25
Cobalt shed Foreman's office	78 70
Cobalt, watchman's shelter	40 50
Cobalt closets	98 75
Cobalt coal house	35 80
Cobalt customs office	59 55
Cobalt battery stands	15 75
Cobalt removing construction shacks	44 87
Cobalt section house woodshed	71 00
Cobalt fire protection	2 75
Haileybury station	51 20
Haileybury agent's house shed	51 00
Haileybury section house woodshed	51 00
Liskeard freightshed scales	34 60
Thornloe station	27 80
Earlton cellar	109 90
Heaslip freightshed	189 56
Englehart freightshed scales	69 05
Englehart agent's house	16 25
Englehart greenhouse	108 72
Englehart icehouse	22 50
Englehart coal chutes, bogsbacks	323 65
Englehart sand house	325 72
Dane section house woodshed	41 25
Swastika platform extension	5 00
Swastika ram	1,026 93
Matheson section house woodshed	108 25
Matheson freightshed	228 80
Watayheag boarding camp	229 41

Holland fire protection section house	$10 19
Wicklow fire protection section house	7 10
Wicklow section house woodshed	55 00
Cochrane section house woodshed	51 25

Kerr Lake Branch.

Kerr Lake platform and shelter	41 50
Kerr Lake agent's house	186 15
Kerr Lake freight office	27 10
Kerr Lake woodshed	7 50
Kerr Lake fire protection	1 50

Charlton Branch.

Charlton Branch fire protection	20 00

Summary.

Maintenance of way and structures	1,287 52
Buildings, First Division	7,007 88
Buildings, Second Division	1,097 17
Buildings, Charlton Branch	33 82
Maintenance of Equipment	9,761 36
Transportation expenses	363 86
General expenses	79 39
Clearing account store expenses	4,740 51
Additions and betterments, First Division	3,404 48
Additions and betterments, Second Division	2,606 38
Additions and betterments, Third Division	352 98
Additions and betterments, Kerr Lake Branch	263 75
Additions and betterments, Charlton Branch	20 00
Construction, First Division	320 49
Construction, Second Division	202 15
Construction, Third Division	530 37
Construction, Charlton Branch	125 65
Total	$32,197 76

Standard Section House—T. & N. O. Ry.

REPORT OF WM. YOUNG—GENERAL ROADMASTER

Steam Shovel Work

Ballast, Steam Shovel Loaded, M.P. 17.

Cars.	Purpose.
1,711	Ballasting main line, First Division. Maintenance.
435	Restoring main line embankments to width, First Division. Maintenance.
138	Filling for tracks in pit, M.P. 17.
32	Filling bridge, M.P. 34⅛.
68	" " M.P. 62¼.
Total 2,384	

Ballast, Steam Shovel Loaded, M.P. 25.

Cars.	Purpose.
1,775	Ballasting main line, First Division. Maintenance.
991	Restoring embankments, main line, First Division, to original width. Maintenance.
29	Filling for new through siding, M.P. 26.
204	" " " " Tomiko.
10	" Bridge, M.P. 62¼.
Total 3,009	

Ballast, Steam Shovel Loaded, M.P. 58½.

Cars.	Purpose.
109	Ballasting main line, First Division. Maintenance.
601	Restoring embankments of main line to original width, First Division. Maintenance.
779	Filling trestle, M.P. 50.81.
144	Ballasting main line diversion, M.P. 60¼.
47	Ballasting and filling new siding. Temagami.
36	Filling for roadway to new siding. Temagami.
25	Filling around foundation of removed water tank. Temagami.
Total 1,741	

Filling Material, Steam Shovel Loaded, Doherty.

Cars.	Purpose.
411	Filling bridge, M.P. 62¼.
5	" " M.P. 68⅞.
65	Restoring main line embankments to width, First Division.
Total 486	

Ballast, Steam Shovel Loaded, Pit M.P. 74½.

Cars.	Purpose.
351	Ballasting main line, First Division. Maintenance.
160	Restoring embankments to original width. First Division. Maintenance.
404	Filling bridge, M.P. 75.44.
3	Filling for Messrs. Black and Wagar's siding, M.P. 79½.
918 Flats	
2 "Hart"	Shipped to Cobalt for Retaining Wall, new station.
Total 920	

Ballast, Steam Shovel Loaded, M.P. 77½, 78.

64	Restoring embankments to original width, First Division. Maintenance.
514	Filling bridge, M.P. 75.44.
Total 578	

Concrete Gravel, Hand Loaded, M.P. 77½, 78.

3 "Hart"	New foundation for water tank, Temagami.

Ballast, Steam Shovel Loaded, M.P. 98.

52	Filling land slide, south end Cobalt Lake. Maintenance.
62	Filling for new sidings, Kerr Lake Junction.
122	" " " M.P. 98.
225	Ballasting double track, North Cobalt to Haileybury.
16	Filling for new sidings, Kerr Lake.
6	Filling bridge, M.P. 34⅛.
12	Filling approaches, Bridge, M.P. 25½.
Total 495	

Rock and Earth Excavation, Steam Shovel, Cobalt.

255	Used for filling, double track, Cobalt to North Cobalt.

Ballast, Steam Shovel Loaded, Cassidy.

1,877	Ballasting, First Division. Maintenance.
8	Ballasting, Kerr Lake Branch. Maintenance.
56	Land slide, south end Cobalt Lake. Maintenance. (Filling).
28	Filling narrow embankment, M.P. 99. Maintenance.
322	Restoring main line embankments to original width. First Division. Maintenance.
176	Ballasting sidings, Cobalt. Maintenance.
27	Ballasting town spur, North Cobalt. Maintenance.
11	Restoring grade of road crossing, M.P., 108½. Maintenance.
16	Delivered at Englehart for town streets.
8	Passenger Landings on Kerr Lake Branch.
3	Station roadways, Liskeard.
16	Delivered at Uno Park for township roads.
70	Filling drain from septic tank, Englehart.
4	Ballasting Palmer & Place's spur, Latchford.
96	Filling for Liskeard Spur.
151	Grading approaches to road crossings, double track, Cobalt to North Cobalt.
709	Filling Cobalt Lake for double track, Cobalt to No. Cobalt.
3,783	Filling for double track, Cobalt to North Cobalt.
956	Ballasting " " " " "
148	Filling for extension new station platform, Cobalt.
28	Filling for new through siding, Haileybury spur.
122	Main line diversion at M.P., 119.13 in connection with new bridge at that point. Filling and ballasting.
256	Filling for tracks in new pit, Cassidy.
363	Filling for new sidings, M.P. 98.
380	Ballasting " "
708	Filling for new sidings, Kerr Lake Junction.
197	Ballasting " " "
16	Filling for new terminal sidings, Kerr Lake.
16	Ballasting " " "
32	Roadways to new terminal sidings, Kerr Lake.
Total 10,585	

Loam, Steam Shovel Loaded, Cassidy.

12	Shipped to Temagami for station lawns and flower plots.

Sand Filling, Steam Shovel Loaded, Dane Pit.

74	Ballasting main line Second Division. Maintenance.
69	Ballasting Charlton Branch. Maintenance.
95	Widening narrow embankments, Charlton Branch.
80	" " " main line, Second Division.
719	Filling for new terminal sidings, Charlton.
62	Filling for Long Lake Lumber Co's. siding, Charlton.
7	Filling for Riordan Pulp Co's. new siding, M.P. 140½.
79	Filling bridge, M.P. 184¼.
Total 1,185	

Ballast, Steam Shovel Loaded, Wataybeag.

1,545		Ballasting main line. Second Division. Maintenance.
948		Restoring embankments to original width, Second Division. Maintenance.
21		Filling and raising sags, main line, Third Division. Construction.
198		Ballasting, Third Division. Construction.
36		Delivered at Kelso for townsite streets, etc.
6		Gravel for ram at Swastika.
2,754	Flats	
12	"Hart"	Delivered at Matheson for townsite streets, etc.
1		Concrete gravel shipped to I. Kirt, Englehart, B.C.
2		" " " Knight Bros., Cochrane.
5		" " " Agent, Cochrane.
20	"Hart"	

Clay Filling, Steam Shovel Loaded, Monteith.

Cars.		
Flats.	Harts.	Purpose.
1,569	.....	Filling trestle, M.P. 218½. Construction.
72	.....	" " M.P. 222¼. "
Totals 1,641		

Ballast, Steam Shovel Loaded, Nellie Lake.

2,617	20	Filling, ballasting, etc., Third Division, Construction.
3,644	.....	Widening fills and raising sags, Third Division, Construction.
146	.....	Delivered at Kelso for townsite streets, etc.
20	.....	Ballasting old through siding, Holland. Construction.
166	.....	Raising old through siding, Wicklow. "
24	.....	Ballasting "Y" Cochrane. "
471	.....	Ballasting yard sidings, Cochrane. "
54	.....	Ballasting coal siding, " shops. "
279	.....	Filling at new station, Cochrane. "
22	.....	Filling approaches to bridge, M.P. 217.
2,745	.....	Filling bridge, M.P. 218½. "
2,207	209	Filling bridge, M.P. 221. "
2,983	.....	Filling bridge, M.P. 222¼. "
136	.....	Filling for pit tracks, Nellie Lake. "
20	.....	Filling around water tank, Nellie Lake.
20	.....	Ballasting siding, Monteith. "
74	.....	Filling renewed culvert, M.P. 49¾. "
20	.....	Ballasting siding, Kelso. "
Totals 15,648	229	

Cinder Ballast, North Bay Junction.

Cars	Where Unloaded.	Purpose.
8	Cobalt	Ballasting new sidings.
2	North Cobalt	Culverts, double track, Cobalt to North Cobalt.
2	Temagami	Culverts, extension north end old through siding.
26	North Bay Jct...	Ballasting yard tracks.
1	" " " ..	Around round-house and shops.
4	M.P. 15.4	Ballasting Vevrais spur.
4	M.P. 29½	New culvert.
6	M.P. 45½	Filling sink hole.
78	M.P. 52	Filling sink hole.
5	Spur 81½	Ballasting mining spur.
Total. 136		

Cinder Ballast, Kerr Lake Junction.

4	Kerr Lake Branch	Ballast.
2	Cobalt	Ballasting new Silver Queen Mining Co.'s siding.
7	"	Ballasting new yard sidings.
1	M.P. 52	Sink hole.
Total. 14		

Cinder Ballast, Englehart.

Cars.	Where Unloaded.	Purpose.
4	Dane	Ballasting. Maintenance.
2	M.P. 139	" "
8	M.P. 140	" "
11	M.P. 141	" "
8	Englehart	Road Crossing.
18	"	Greenhouse drain.
2	"	Station grounds.
11	"	Shop grounds.
2	"	Ballasting "Y."
83	"	Ballasting yard tracks.
2	Charlton	Palmer and Place's spur.
23	..... "	New siding for Long Lake Lumber Co.
1	..... "	Ballasting yard.
16	Charlton Branch.	Ballasting.
5	M.P. 109½	Drainage cutting.
2	M.P. 138	Bridge approaches.
4	M.P. 119.13	Bridge approaches.
3	M.P. 119.13	Temporary spur for use of pile-driver.
3	M.P. 132	Tile drainage in cutting.
9	M.P. 52	Sink hole.
2	M.P. 162¼	Bridge approaches.
4	Cochrane	Around old station.
5	"	Shop grounds.
Total. 228		

Cinder Ballast, Cochrane.

1	Cochrane	Around old station.

Other Materials Handled by Work Trains.

Loaded.	Unloaded.	Material.	Purpose.
3	3	Old ties	Filling trestle, mileage 221.
2	2	" "	" " " 218½.
.....	1	Switch ties	New freight storage sidings, M.P. 98.
15	8	Track ties	New yard sidings, Charlton.
.....	2	" "	Pit sidings, Cassidy Pit (Ballast production).
18	26	" "	New freight storage sidings, M.P. 98.
.....	1	" "	McKinley Darragh siding, Kerr Lake Branch.
.....	42	" "	Tie Renewals, First Division.
59	.....	" "	Transfer of tie stock for renewals and other purposes, First Division.
122	.....	" "	Transfer of tie stock for renewals and other purposes, both divisions.
.....	69	" "	Tie renewals. Second Division.
1	1	" "	Temporary pit sidings, Doherty.
.....	1	" "	Tie renewals, Charlton Branch.
.....	1	" "	Sidings, Wataybeag Pit (Ballast production).
2	.....	" "	Sidings Cochrane.
1	1	" "	Temporary pit sidings, M.P. 74½.
.....	1	" "	New spur for Messrs. Black and Wagar at mileage 79½.
3	3	" "	Sidings, Nellie Lake ballast pit.
.....	1	" "	New through siding, mileage 26.
26	22	" "	Double track, Cobalt to N. Cobalt.
1	2	" "	Temporary pit sidings, M.P. 17.
.....	2	" "	Renewals, mining spur, M.P. 81½.

Other Materials Handled by Work Trains.—Continued

Loaded.	Unloaded.	Material.	Purpose.
.....	1	Track ties	Main line diversion, M.P. 60¼.
1	.....	Steel rails	Main line diversion in connection with construction of new bridge at M.P. 119.13.
1	1	" "	Vevrais & Co.'s siding, M.P. 15.4.
2	1	" "	Pit sidings, Cassidy (Ballast production).
.....	8	" "	New freight storage sidings, M.P. 98.
36	.....	" "	Transfer of released rail for renewals and new sidings, both divisions.
.....	55	" "	Rail renewals, First Division.
1	1	" "	McKinley Darragh spur, Kerr Lake Bch.
1	1	" "	New siding at M.P. 140½ for Riordan Pulp Co.
.....	1	" "	Temporary siding at Monteith for use of steam shovel, excavating filling for trestle 218½.
1	2	" "	Sidings, Wataybeag pit.
.....	1	" "	New siding at 79½ for Messrs Black and Wagar.
2	2	" "	Pit sidings, Nellie Lake.
6	11	" "	Double track, Cobalt to North Cobalt.
1	2	" "	Temporary pit sidings, M.P. 17 (Ballast production).
1	1	" "	New through siding, mileage 26.
1	1	" "	" " " Tomiko.
4	4	" "	Rail renewals, mining spur, M.P. 81½.
.....	1	" "	Diversion of main line, M.P. 60¼.
4	.....	" "	56-pound rails taken from mining spur at M.P. 81½ to be used as bridge guards; replaced in spur by 80-pound rail.
1	4	" "	Rail renewals, Second Division.
10	10	Stone	Filling Lake at Cobalt tor extension of new station platform.
15	15	"	Rip-rapping abutment Montreal River bridge, Latchford.
8	8	"	Rip-rapping South Wabis River bridge, M.P. 115½.
12	12	"	Filling crib on Long Lake Lumber Co.'s new siding, Charlton.
51	51	"	Reinforcing substructure of bridge, M.P. 119.13, to prevent further slide.
108	108	"	Filling lake at Cobalt for double track, Cobalt to North Cobalt.
36	36	Poles, etc.	Filling trestle, M.P. 221.
23	23	"	Cross-laying sink hole, M.P. 52.
2	2	"	" " " " mining spur, M.P. 81½.
51	47	Poles, logs, etc. ..	This material was loaded on right of way, brought to and unloaded at North Bay Junction, and converted into fence posts to be used in building new and repairing old fence.
3	2	Telegraph poles..	Cleaning right of way, etc., Second Division.
1	1	" " ..	" " " Charlton Branch.
14	.....	" " ..	" " " First Division after reconstruction of telegraph line.
.....	5	Fence posts	Fencing right of way, Second Division.
1	1	Culvert timber ..	Cedar culverts, double track, Cobalt to North Cobalt.
2	.....	New bridge timber	Bridge M.P. 119.13.
1	.....	Old bridge timber	Cleaning right of way, First Division.
3	.....	Piles	Bridge 119.13.
1	.....	Lumber	Bridge 119.13.
.....	1	Tile	Culverts, double track, North Cobalt to Haileybury.
1	1	"	Drainage clay cut, M.P. 155.
3	.....	Scrap rail	Cleaning and collecting same for shipment to scrap buyers.
7	.....	Track scrap	Cleaning and collecting same for shipment to scrap buyers.
.....	1	"Continuous" rail joints	Renewals, First Division.
.....	1	Tie-plates	Additional tie-plates, First Division.

Other Materials Handled by Work Trains.—Continued.

Loaded.	Unloaded.	Material.	Purpose.
.....	1	Switch frogs	Repairs Switches, First Division.
1	.....	Switch material .	New sidings, Cochrane.
1	1	" " .	Pit sidings, Wataybeag (Ballast production).
.....	1	Track spikes	Double track, Cobalt to North Cobalt.
1	.....	Car wheels	Loaded at Diver for Car Department.
.....	1	Water tank	For use of locomotives in Cassidy Pit (Ballast production).
1	1	Hand-car house .	Transfer of section foreman's dwelling from Riddle to Jocko.
1	.....	Coal	Use of locomotives, North Bay Junction.
.....	1	Cinders	Ballasting main line, First Division.
.....	10	"	Filling sink hole, M.P. 52.
22	22	Clay	Double purpose of (1) cleaning clay cuts, McRae, Chandler & McNeil Contract, and (2) Filling trestle, M.P. 218½.
16	16	Stumps and brush	Filling land slide at south end of Cobalt Lake, Cobalt yard. Maintenance.

Other Materials Handled by Hand.

Cars.	Material.	Londed at.	Unloaded at.	Purpose.
7	Crushed stone...	Cobalt.....	Haileybury	Station roadways.
27	Rough stone	"	Haileybury spur.	Rip-rapping embankments on lake front.
4	" "	"	Cobalt.....	Culverts in connection with new sidings, south end Cobalt yard.
7	Muck and loam..	Uno Park.....	Temagami.....	Station flower beds.

Broken and Defective Rails.

Cause and remarks.	No.	Lin. Feet.	Make
Flaw in base of rail	2	66	Algoma.
	10	328	Cammell's.
Crushed head and piped	4	132	Algoma.
	26	1,617	Cammell's.
Crushed head	1	33	Algoma.
	69	4,449	Cammell's.
Cause unknown	6	396	Algoma.
	9	477	Cammell's.
Damaged by engine leaving track	2	66	Cammell's.
Soft rail	1	33	Algoma.
Broken by falling rock	6	396	Cammell's.
Chipped base, caused by broken car wheel	1	33	Cammell's.
Old flaw in web of rail	3	99	Algoma.
	2	66	Cammell's.
Rail damaged by broken car wheel flange	18	594	Cammell's.
Half moon break in base of rail	1	31	Algoma.
	8	264	Cammell's.
	1	33	D. I. & S.
Split head and piped	1	33	Algoma.
	63	3,063	Cammell's.
Split head	4	132	Cammell's.
Old flaw in base of rail	2	66	Cammell's.
Surface bent by blasting	1	33	Cammell's.

Making ground for garden—Englehart

Steel rail renewals.

From M.P.	To M.P.	Miles	Weight per yard.	Pattern.	Makers.
8¾	Near 16	7.18	80 lb.	A.S.C.E.	Algoma Steel Co., Year 1909.
30	31	990 feet	80 lb.	"	" " " 1909.
38	41½	3.5	80 lb.	"	" " " 1910.

Rails released in favour of above.

From M.P.	To M.P.	Miles.	Weight per yard.	Pattern,	Makers.
8¾	Near 16	7.18	80 lb.	A.S.C.E.	Cammell's, Sheffield, Eng., Year 1903.
30	31	990 feet	80 lb.	"	Cammell's, Sheffield, Eng., Year 1903.
38	41½	3.5	80 lb.	"	Cammell's, Sheffield, Eng., Year 1903.

Remarks.—Steel rails sufficient for 15.4 miles of track were received from the Algoma Steel Works of Sault Ste. Marie, Ont., during the year. The best of released rails were used in second main track and for renewals on main line, while the second quality are used for sidings. By this means the main line is given advantage of the new rails.

Rail changes in sidings, etc.

Location.	Siding.	Lineal feet of rail.	Remarks, etc.
Feronia	Through	132	Switch leads relaid with 1909 Algoma new rail, 80-lb.
Widdifield	"	310	Switch leads relaid with 1909 Algoma new rail, 80-lb.
Diver	"	168	Switch leads relaid with 1910 Algoma new 80-lb. rail.
"	Wye	3,564	56-lb. rail replaced by 80-lb. second quality released rail.
Otter	Through	76	One switch lead relaid with 1910 Algoma new 80-lb. rail.
Doherty	"	116	Switch leads relaid with first quality released 80-lb. rail.
M.P. 81½	Mine spur	7,726	56-lb. rail replaced by second quality released rail, 80-lb.

Cross ties used.

	First and Second Quality.	Culls.
Renewals, First Division	58,264	4,358
" Second Division	6,742	20
Extras, First Division	13,057	803
" Second Division	17,551	242
Construction T. & N. O. sidings, First Division	10,835	1,994
" " " Second Division	7,325	.....
" Private sidings, First Division	580	.....
" " " Second Division	265	.....
" Double or second track	9,205	.....
	123,824	7,417

Sets of switch ties used.

	For No. 8 frog.	For No. 10 frog.
Renewals, First Division	12	6
" Second Division	3	
Construction T. & N. O. sidings, First Division	19	9
" " " Second Division	1	
" Private sidings, First Division	1	
Renewals, private sidings, First Division (B.C.)	2	
	38	15

NOTE.—Set of switch ties for No. 8 frog or turn-out contains 510¼ lineal feet of timber 7 in. x 9 in., and for No. 10 frog, 561¾ lineal feet.

New Under Culverts.

Location.	Size.	Length.	Description.	Purpose.
Trout Mills	20 in. x 24 in.	33 ft.	Cedar box	Under main line.
Temagami	12 " 24 "	16 "	"	Under new town siding.
M.P. 102½	2 ft. x 2 ft.	28 "	"	Extended under new sidings.
	24 in.	55 "	Concrete tile	" " "
M.P. 103½	2 ft. x 2 ft.	30 "	Cedar box	Extended under double track.
M.P. 104	2 " 2 "	13 "	"	" " "
M.P. 104½	2 " 2 "	13 "	"	" " "
M.P. 105½	15 in.	40 "	Concrete tile	Under both main lines.
M.P. 105½	24 in.	38 "	"	" "
Kelso	2 ft. x 2 ft.	50 "	Cedar box	Under main line, siding and roadway.

New Side Culverts.

Location.	Size.	Length.	Description.	Purpose.
M.P. 104½	12 in.	140 ft.	Vitrified tile	Roadcrossing, double track.
M.P. 104½	15 "	18 "	Concrete tile	" " "
M.P. 105	15 "	18 "	"	" " "
North Cobalt	20 in. x 24 in.	30 "	Cedar box	" " "
M.P. 106½	30 in.	40 "	Concrete tile	" " "
M.P. 108½	12 "	50 "	Vitrified tile	" " "
M.P. 115¾	30 in. x 36 in.	31 "	Cedar box	Renewal.
M.P. 116½	24 " 24 "	10 "	"	Extended.
M.P. 131½	4 ft. x 2½ ft.	30 "	"	Private crossing.
	3 " 20 in.	36 "	"	" "
	2 ft. 6 in. x 2 ft.	28 "	"	" "
M.P. 206½	20 "	70 "	Concrete tile	Roadcrossing.

New Tile Drains.

Location.	Size.	Length.	Description.	Purpose.
North Bay Jc.	10 in.....	76 ft....	Vitrified tile	From old machine shop.
	6 "	80 " ...	Field "	" " carpenter "
M.P. 4½	20 "	100 " ...	Concrete "	Side drain
Temagami..	6 "	141 " ...	Field "	Under through siding.
M.P. 75¾ ...	6 "	159 " ...	" "	Drainage cutting.
M.P. 102¾ ..	10 "	530 " ...	Corrugated iron pipe	Yard drainage.
M.P. 102¾ Cobalt....	6 "	26 " ...	Vitrified tile	Station drainage.
	4 "	20 " ...	" "	" "
North Cobalt.	6 "	105 " ...	Field "	Freight shed drainage
	15 "	22 " ...	Concrete "	" " "
M.P. 109¼...	6 "	763 " ...	Field "	Drainage clay cut.
M.P. 119.13.	24 "	117½ " ...	Concrete "	Drainage land slide,
	20 "	32½ " ...	" "	north end of bridge.
M.P. 131¾...	6 "	655 " ...	Field "	Drainage clay cut.
Englehart ..	6 "	1,000 " ...	Vitrified "	Drainage green
	6 "	100 " ...	Field "	house.
Cochrane ...	12 "	100 " ...	Vitrified "	Yard drainage.
	6 "	200 " ...	Field "	Drainage section dwelling cellar.

Roadways.

Location.	Purpose.	Remarks.
Temagami..	To new Town siding ...	Graded with ballast from pit 58½.
Haileybury .	At station	Coated with 7 cars crushed stone.
Liskeard ...	" "	Coated with 5 cars ballast.
Uno Park...	.....	16 cars ballast delivered here from Cassidy Pit for township roads.
Englehart ..	.....	16 cars ballast delivered at this point from Cassidy Pit for town streets.
Matheson ...	.....	12 " Hart " cars ballast unloaded here for town streets; hauled from Wataybeag Pit.
Kelso.....	.....	182 cars ballast unloaded here for townsite streets.

Ditching.

Location.	Length.	Remarks.
Between M.P. 53 & 54.....	400 ft.	Side ditch.
North Cobalt.....	365 "	Freight shed drainage.
Between M.P. 144 & 145.....	600 "	Side ditch.
" 148½ & 149.....	1,000 "	" "
M.P. 149.....	400 "	Drainage in connection with land slide, Swanson's cut.
Between M.P. 156 & 162	800 "	Side ditch.
M.P. 168.....	600 "	" "
Between M.P. 177 & 178	300 "	" "
" M.P. 183 & 184.....	2,150 "	" "
Matheson.....	2,160 "	Drainage "Triangle," for park purposes.
Between M.P. 207 & 208.....	400 "	Side ditch.
" M.P. 215 & 216.....	670 "	" "
M.P. 222½.....	600 "	" " filled trestle.
M.P. 217½.....	600 "	Side ditch
M.P. 218½.....	400 "	" " filled trestle.

Clay Cuts Cleaned.

M.P 215½	670 ft.	Quick-sand and running clay filled ditch and obstructed main track.

Land Slides.

Location.	Remarks.
M.P. 102¾, Cobalt.....	New fill for second main track slid into Cobalt Lake in two places, and several times before filling gradually found bottom.
M.P. 119.13, North Wabis River.....	At north end of bridge the embankment on east side of track slid into ditch, crippling end of bridge and causing wreck of freight train.
" " "	At south end of bridge the entire slope to the river settled down to the West, pulling old wooden bridge with it. The driving piles for new bridge foundations was the means of starting slide.
M.P 149, "Swanson's" cut.....	On east side of track the cut broke down and slid towards the track, partly pushing it out of line and distorting the surface. The portion next the track was removed and cross ditched to tap the water from behind.

Public Road Crossings Installed.

Location.	Description.	Remarks.
M.P. 104¼	At grade	Private crossing, converted into public crossing over double track.
M.P. 106	"	East approach filled and cattle guards put down.
M.P. 107	"	New cattle guards put down.
M.P. 108½	"	Private, converted into public crossing. Graded and cattle guards installed.
M.P. 206¼	"	New. Graded and fenced. Side culverts and cattle guards installed. New road, Matheson to Porcupine.

Private Crossings Installed.

M.P. 1½	At grade	Temporary, for J. Blanchet.
M.P. 12	"	" Milne & Son.
M.P. 18	"	"
M.P. 201	"	" Ferguson & McFadden.
M.P. 92½	"	"
M.P. 101	"	"
M.P. 131¼	"	Graded with side culverts and gates.

Cattle Guards Installed.

Location.	Crossing sets.	Kind.	Remarks.
M.P. 104¼	1	Wooden slat.	Double track.
M.P. 106	1	" "	" "
M.P. 107	1	" "	" "
M.P. 108½	1	" "	Single "
Krugerdorf	1	" "	" "
M.P. 206¼	1	" "	" "

New Fence Constructed.

Description.	Location.	Side.	Gates.	Total Rods.
Right of Way	Jocko		3	416
" "	M.P. 94 & 95	East		135
" "	M.P. 94 & 97	West		810
Around Park Lot	Englehart		1	78
Right of Way	M.P. 145½ to 149	Both	12	2,328
" "	M.P. 149 & 150	Both		640
" "	M.P 174 & 176	West	2	439
" "	M.P. 176 & 177	West	2	243
" "	M.P 174 & 177	East	6	907
" "	M.P. 198 & 205	East	7	644
" "	" " "	West		775
" "	M.P. 205 & 212	Both	4	2,468
				9,883

9,883 Rods—30.9 miles.

Old Fence Renewed.

Description.	Location.	Side.	Gates.	Total Rods.
Right of Way, from Ice house to Charlton Junction	Englehart	West	4	246

Old Fence Repaired.

Description.	Location.	Side.	Total Miles
Right of Way	M.P. 103½ to 108	Both	9
" "	M.P. 108 to 113	One	5
" "	M.P. 115 to 117	Both	4
" "	M.P. 119 t 121	Both	4
" "	M P 140 to 145½	Both	11
			33

Rock and Boulder Cuts Cleaned and Widened.

From M.P.	To M.P.	Total miles.	Remarks.
30	35	5	Loose rock removed and all projections taken off to clear wings of snow plow when in service.
39	44	5	
46	50	4	
51	54	3	
55	57	2	
88	90	2	
		21	

Right of Way Cleaned.

113	123	10	Ordinary right of way cleaned of stumps, brush and rubbish, together with section dwelling grounds at Uno Park, station grounds at Liskeard and 3-foot strip outside of right-of-way fence.
131	138½	7½	Ordinary right-of-way cleaned of all brush, stumps and rubbish; the whole being burned up.

Cross Logging.

Location.	Material.	Remarks.
M.P. 221	16 ft. poles, 6 in. dia..	Used in filling trestle.
M.P. 218	" " ..	" "
M.P. 243-244	" " ..	Used under track; muskeg formation.
M.P. 52	" " ..	" " " "

Stone Rip-Rapping.

Location.	Quantity.	Remarks.
M.P. 94	15 cars	Protection south abutment Montreal River bridge.
M.P. 102½, Cobalt	10 "	Shore of lake in connection with extension of station platform.
" " "	108 "	Shore of Cobalt lake in connection with land slide of fill for second main track.
Haileybury spur	27 "	Protection of embankment against wash of water of Lake Temiskaming.
M.P. 115, South Wabis River bridge	8 "	Additional to the work of this nature done in year 1909, to protect embankments at bridge foundations.
M.P. 119.13, North Wabis River bridge	51 "	Used to reinforce substructure of bridge against land slide.

Timber Bridges Filled.

Location.	Material.	Quantities.	Remarks.
M.P. 34½	Ballast	38 flat cars	Completed.
M.P. 68¾	"	5 " "	"
M.P. 70	"	5 " "	"
M.P. 50.81	"	779 " "	" Q Ballast from pit 58½.
M.P. 62.25	Gravel and loam	411 " "	From Doherty.
	Ballast	68 " "	" Pit 17.
	"	10 " "	" " 25. Completed.
M.P. 75.44	"	404 " "	From pit 74½.
	"	514 " "	" " 77½. Completed.
M.P. 184¼	Sand	79 " "	From Dane. Completed.
M.P. 218½	Clay and sand	1,569 " "	From Monteith.
	Sand	2,745 " "	From Nellie Lake.
	*Old ties	2 " "	
	Clay	22 " "	From near Monteith (cuts). Work completed.
M.P. 221	Sand	2,207 " "	From Nellie Lake.
	"	209 "Hart" cars	" " "
	*Old ties	3 flat cars	
	*16 ft. Jack-pine poles	36 " "	Work completed.
M.P. 222¼	Clay and sand	72 " "	From Monteith.
	Sand	2,983 " "	" Nellie Lake. Work completed.

* Used for crosslaying.

Construction Wells.

Location.	Depth.	Material.	Pump.	Remarks.
Redwater	7½ ft.	30 in. concrete tile	Iron force	Section dwelling use.

Main Line Reballasted.

From Mile Post.	To Mile Post.	Quantity.	Total Miles.
1	5½	One car deep	4.5
7½	18¼	" " "	10.75
21	22½	" " "	1.5
23¼	24½	" " "	1.25
26	26½	Two " "	.5
27	38½	One " "	11.5
41	41½	" " "	.5
51	51½	" " "	.5
60	60½	Three " "	.5
75½	77½	One " "	2.
102¾	107½	" " " (old main line)	5.25
102¾	105¾	Three car deep (new main line)	3.
105¾	107½	One car deep (new main line)	1.75
108¾	109¾	One car deep	.5
111½	112	" " "	.5
121	122½	" " "	1.5
131	134¼	" " "	3.25
135	137	" " "	2.
163½	164	" " "	.5
167	168	Two " "	1.
168½	169	One " "	.5
182¾	184½	" " "	1.75
190½	194	One and a half car deep	3.5
195	205	" " " "	10.
220	221	Two car deep	1.
226	227½	Three " "	1.5
234	252	One " "	18.
			89.00

Main Line Resurfaced.

From Mile Post.	To Mile Post.	Average Lift.	Total Miles.
1	5½	8½ in.	4.5
5½	7½	2 "	2.
7½	18¼	7 "	10.75
21	22½	9 "	1.5
23¼	24½	5 "	1.25
26	26½	18 "	.5
27	38½	5 "	11.5
41	41½	4 "	.5
49	50½	2 "	1.5
50½	56	3 "	5.5
58	60½	4 "	2.5
68	68¼	4 "	.25
75½	77½	5 "	2.
102¾	107½	6 " (Old main line)	4.75
		18 " (New main line)	4.75
117	118½	2 "	1.5
121	123	3 "	2.
131	134	5 "	3.
135	137	5 "	2.
137	138	2 "	1.
163½	164	8 "	.5

Main Line Resurfaced.—Continued.

From Mile Post.	To Mile Post.	Average Lift.	Total Miles.
167	168	10 "	1.
168½	169	8 "	.5
179	179¾	4 "	.75
180½	181	4 "	.5
182¾	184⅓	8 "	1.75
190½	194	10 "	3.5
195	205	10 "	10.
220	221	12 "	1.
226	227½	15 "	1.5
234	252	9 "	18.
		6.9 m.	102.25

Signs.

Enamel station sign posts were erected at the following points:

Mulock, Riddle, Otter, Bushnell, Doherty, Rib Lake, Johnson, Kenogami, Bourkes, Ramore, Monteith, Iroquois Falls, Holland, Wicklow.

"Slow" sign posts were erected as follows:—

Location.	Number signs.	Purpose.
M.P. 47½	2	Reduce speed of trains at danger points in case of derailment, account of high embankments and deep water lakes.
M.P. 65½	2	
M.P. 87	2	
M.P. 88¾	2	
M.P. 109	2	
M.P. 110	2	
M.P. 138¼	2	
M.P. 146	2	
M.P. 153½	2	
M.P. 163	2	
M.P. 196½	2	

Re-alignment of Curves.

From Mile Post.	To Mile Post.	Av. Distance Moved.	Total Miles.
10½	16	8 inches.	5.5
38½	39½	4 "	1.
41	41½	2 "	.5
55	55½	13 "	.5
175	178	4 "	3.
182	184	9 "	2.
179	179¾	3 "	.75
180¼	180¾	3 "	.5
			13.75

During construction of North Wabis Bridge.

ANNUAL REPORT—ROAD DEPARTMENT—YEAR 1910.

Maintenance of Track.

First Division.

The cost of maintenance has increased considerable, both in labour and material, account of tie, rail and ballast renewals: the tie renewals having almost doubled that of the previous year; rail renewals slightly increased, and re-ballasting increased tenfold.

In consequence, the track has not only been maintained in better condition, but has been greatly improved both in line and surface. Early in the open season an additional track supervisor was placed in order to make more frequent inspections of the forces employed and the works in progress, which has been largely instrumental towards the improved track conditions at the close of the fiscal year.

Second Division.

The tie renewals have been six times greater than those of the previous year. The rails are all in good order, requiring little attention, except the renewals of a few broken. Considerable re-ballasting was done, more especially between mile posts 190 and 205. Between Monteith and Cochrane the necessary sand ballast was distributed and placed under the track, together with some cross-logging on the soft portions of muskeg formation. Track on the muskeg portion of the line being new has been maintained in fairly good surface considering the frequent repairs necessary.

Report of Expenditure of the Road Department.

Maintenance of Way and Structures, First Division.

Superintendence	$4,073 20
Ballast	964 84
Ties	957 34
Rails	795 65
Other track material	348 65
Roadway and track	60,058 83
Removal of snow, sand and ice	7,628 60
Bridges, trestles and culverts	806 29
Grade crossings, fences, cattle guards and signs	411 69
Snow and sand fences and snow sheds	11 86
Telegraph and telephone lines	34 85
Buildings, fixtures and grounds	573 89
Roadway tools and supplies	1,374 69
Northland Mining Co. spur, Mileage 81½	119 01
	$78,159 39

Maintenance of Way and Structures, Second Division.

Superintendence	$2,897 60
Ballast	4,023 11
Ties	1,167 96
Rails	0 82

Other track material	$107 78
Roadway and track	100,699 01
Removal of snow, sand and ice	5,488 00
Bridges, trestles and culverts	132 52
Grade crossings, fences, cattle guards and signs	1,155 63
Snow and sand fences and snow sheds	26 38
Telegraph and telephone lines	220 02
Buildings, fixtures and grounds	1,265 09
Roadway tools and supplies	479 66
	$117,663 58

Maintenance of Way and Structures, Kerr Lake Branch.

Superintendence	$100 07
Ballast	33 21
Ties	3 62
Roadway and track	1,439 74
Removal of snow and ice	315 03
Bridges, trestles and culverts	16 67
Grade crossings, fences, cattle guards and signs	14 23
	$1,922 57

Maintenance of Way and Structures, Charlton Branch.

Superintendence	$161 36
Ballast	302 52
Ties	78 85
Roadway and track	2,520 51
Removal of snow, sand and ice	547 67
Grade crossings, fences, cattle guards and signs	17 25
Telegraph and telephone lines	36 87
Buildings, fixtures and grounds	28 92
	$3,693 95

Maintenance of Equipment, First Division.

Freight train cars repairs	$49 60
Work equipment repairs	952 01
Shop machinery and tools	9 32
Power plant equipment	56 18
	$1,067 11

Maintenance of Equipment, Second Division.

Freight train cars repairs	$1 12
Work equipment repairs	48 40
Power plant equipment	71 35
	$120 87

Transportation Expenses, First Division.

Superintendence	$78 00
Station employees	896 83
Station supplies and expenses	19 86

Yard switch and signal tenders	$1,950 62
Yard supplies and expenses	4 00
Engine house expenses, yard	7 24
Fuel for yard locomotives	185 57
Engine house expenses, road	268 57
Fuel for road locomotives	1,478 50
Water for road locomotives	184 57
Road trainmen	5 80
Train supplies and expenses	26 22
Clearing wrecks	420 38
Loss and damage, freight	18 29
Loss and damage, baggage	18 29
	$5,592 74

Transportation Expenses, Second Division.

Station employees	$270 01
Station supplies and expenses	30 69
Yard switch and signal tenders	843 88
Engine house expenses, road	260 11
Fuel for road locomotives	686 61
Water for road locomotives	23 41
Train supplies and expenses	29 03
Clearing wrecks	1,544 47
	$3,688 21

General Expenses.

Salaries and expenses of general offices	$2 70
General office supplies and expenses	30 69
	$33 39

Special Accounts.

Townside account	$18 15
Stores, department clearing account	17,681 77
	$17,699 92

Additions and Betterments, First Division.

North Bay, fencing and office building	$32 85
North Bay Junction, dynamite house	9 90
North Bay Junction, drain to Lake Nipissing	320 20
North Bay Junction, lavatory drainage	11 55
Trout Mills, culvert	124 00
Mileage 15.4 Vevrais & Co.'s siding	251 29
Mileage 21½, removing stringers from trestle,	41 89
Tomiko, new freight siding	938 64
Tomiko, fire protection	51 77
Tomiko, new siding, Tomiko Mills	543 06
Mileage, 29½ culvert	14 36
Mileage, 34⅛ filling bridge	254 78
Diver, new siding	263 00
Mileage, 50.81 filling trestle	855 33

Mileage, 60¼ track diversion	$905 59
Mileage, 62¼ filling bridge	1,697 14
Redwater, fire protection	183 60
Temagami, new siding	1,599 36
Temagami, new ice house	69 24
Temagami, station grounds	11 96
Mileage 75½, filling bridge	978 59
Mileage 79½ Black & Wager's siding	131 84
Latchford, riprapping embankments	315 17
Latchford Palmer & Place's siding	210 85
Mileage 98, installing sidings	5,114 70
Gillies, station grounds	2 11
Cobalt, fencing station grounds	29 68
Cobalt widening dump	428 80
Cobalt drainage	359 97
Cobalt station platform	19 00
Cobalt new siding for Silver Queen Mining Co. to replace old siding converted into through siding for T. & N. O.	32 65
Cobalt new freight delivery siding	412 08
Cobalt Campbell's & Deyell's siding	672 81
Cobalt culverts in yard	1 50
Cobalt double track, Cobalt to North Cobalt	17,065 45
Cobalt double track, North Cobalt to Haileybury	827 27
Cobalt cross over switches	198 92
Haileybury log siding	49 55
Haileybury Spur, riprapping	1,143 64
Haileybury Spur, log siding	111 47
Liskeard spur	162 81
Fencing right of way	1,011 64
Grade reversions and changes of line	5 27
Widening cuts and fills	1,427 27
Additional tie plates	15 66
	$38,908 21

Additions and Betterments, Second Division.

Fencing right of way	$3,171 64
Mileage 115½ riprapping at bridge	1,383 20
Uno Park, fencing	8 39
Uno Park, section house grounds	26 02
Mileage 119.13, diversion of track	1,555 77
Mileage 119.13, bridge	285 82
Mileage 119.13, tile drain at old bridge	163 95
Englehart, drain from septic tank	460 15
Englehart greenhouse	122 97
Englehart greenhouse drainage	56 85
Mileage 140, Riordon Paper Co.'s spur	231 79
Mileage 155, road bed drainage	15 21
Mileage 184¼, filling approaches to bridge	206 67
Matheson, fencing triangle	16 35
Matheson, ditching triangle	45 15

Widening cuts and fills	$129 73
Additional tie plates	14 50
	$8,224 19

Additions and Betterments, Third Division.

Fencing right of way, Mileage 205-208	$549 37
Kelso, sidings	129 51
Kelso, roadway	212 38
Iroquois, section house closet	1 68
	$892 94

Additions and Betterments, Kerr Lake Branch.

Grading sidings, Kerr Lake Junction	$1,489 19
Tracklaying, Kerr Lake Junction	2,078 35
Ballasting, Kerr Lake Junction	742 85
Culverts, Kerr Lake Junction	71 58
Ties, Kerr Lake Junction	84 03
McKinley Darragh Mining Co.'s siding	43 53
Ballasting extension terminals	324 18
	$4,833 71

Additions and Betterments, Charlton Branch.

Long Lake Lumber Co.'s siding, grading	$302 15
Long Lake Lumber Co.'s siding, tracklaying	773 78
Long Lake Lumber Co.'s siding, stone for crib	116 84
Palmer and Place's Siding	163 37
Widening cuts and fills	459 20
	$1,815 34

Construction, Second Division.

Renewal culvert 149¾	$156 96

Construction, Third Division.

Widening fills and raising sags	$12,165 92
Ballasting	2,383 00
Tracklaying	142 72
Clay slides	86 78
Refilling trestle 218½	9,817 28
Refilling trestle 221	8,980 81
Refilling trestle 222¼	5,317 66
Building culvert 222	61 15
Building culvert 224	10 05
Crosslogging, Mileage 243-4	679 14
Holland, siding	188 30
Cochrane, drain for tank	13 20
Cochrane, filling around tank	14 10
Cochrane, roundhouse	644 39
Cochrane, shop machinery, etc.	90 48
Cochrane, shop drainage	2 29

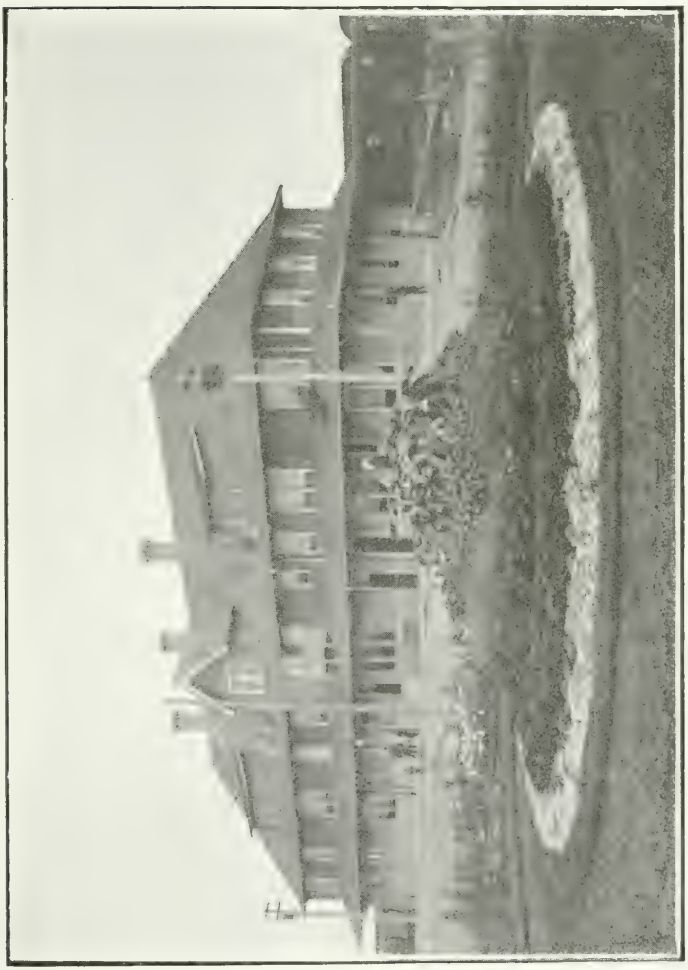
Cochrane, shop sidings and tracks	$968 35
Cochrane, ballasting sidings	534 93
Cochrane, filling around new station	1,649 94
Cochrane, ballasting new Y	22 34
Cochrane, section house grounds	27 95
Cochrane, section house drain	37 80
Cochrane, ditching yard	75 50
Cochrane, fire protection	8 25
Cochrane, leveling banks	82 65
Cochrane, levelling around bunkroom	163 58
Cochrane, heater	52 80
Cochrane, turntable	5 85
Cochrane, culvert in yard	19 66
Cochrane, coal chute siding	100 35
Cochrane, electrical construction, Union Depot	100 20
Cochrane, electrical construction, shops	39 82
Cochrane, extension main, north of G. T. P.	246 99
	$44,734 23

Construction, Charlton Branch.

New terminal sidings, grading	$708 14
New terminal, tracklaying	3,756 30
New terminal, ballasting	604 56
New terminal, switch material	6 68
New terminal, ties	186 61
New station, Charlton	9 05
	$5,271 34

Summary of Distribution of Labor.

Maintenance of way and structures, First Division	$78,159 39
Maintenance of way and structures, Second Division	117,663 58
Maintenance of way and structures, Kerr Lake Branch	1,922 57
Maintenance of way and structures, Charlton Branch	3,693 95
Maintenance of equipment, First Division	1,067 11
Maintenance of equipment, Second Division	120 87
Transportation expenses, First Division	5,592 74
Transportation expenses, Second Division	3,688 21
General expenses	33 39
Special expenses	17,699 92
Additions and betterments, First Division	38,908 21
Additions and betterments, Second Division	8,224 19
Additions and betterments, Third Division	892 94
Additions and betterments, Kerr Lake Branch	4,833 71
Additions and betterments, Charlton Branch	1,815 34
Construction, Second Division	156 96
Construction, Third Division	44,734 23
Construction, Charlton Branch	5,271 34
Total	$331,478 65



Station at Englehart.

MOTIVE POWER AND CAR DEPARTMENT.

Annual Report Ending October 31st, 1910, of Mr T. Ross, Acting Master Mechanic.

New Rolling Stock.

During the year 1910, following new equipment has been received:—

Fifty box cars, 80,000 lbs. capacity, from Canadian Car and Foundry Company, Montreal. These box cars are similar to the preceding lot of fifty, which were supplied by same builders, and are of the type adopted as standard by T. & N. O. Railway, i.e., steel underframe with wood superstructure.

Twelve steel drop-bottom dump cars, 80,000 lbs. capacity, from Canadian Car and Foundry Company, Montreal. These cars were primarily secured for use in connection with the cinder hoists at each terminal, and in addition to this are suitable for handling coal, gravel, lumber, etc.

One official car, "Sir James," from Preston Car and Coach Company, Preston, Ont. This car is of most modern description, and of the composite type steel underframe, with wood superstructure. Length 70 feet, 3½ inches over body, and 80 feet, 3¾ inches over buffers. Interior finished in quartered oak, and lighted by gas and electricity.

Contract has been let to the Canadian Locomotive Company, Kingston, for four "Pacific Type" passenger locomotives. These are to be much larger locomotives than those now in service. Dimensions are: cylinders 21-in. x 28-in.; diameter of driving wheels 69 inches; steam pressure, 200 lbs.; weight on drivers in working order 135,500 lbs.; total weight of engine in working order, 202,500 lbs. These engines will be delivered the early part of 1911.

Contract has been let to Canadian Car and Foundry Company, Montreal, for three Parlor-Cafe cars. These cars will be of similar construction to the new official car, i.e., steel underframe with wood body. Delivery of same will be made in the early part of 1911.

New Shops and Equipment.

During the year 1910, the new roundhouse and machine shop at Cochrane have been completed, and the following new equipment installed therein:

3—66-in. x 14-ft. Horizontal Tubular Boilers, purchased from the John Inglis Company, Toronto.

1—Duplex Feed Water Pump, from the Smart Turner Company, Hamilton.

1—10-in. x 14-in. Rand Air Compressor, from the Rand Drill Company, Sherbrooke, Que.

1—25 H.P. Horizontal Stationary Engine, from E. Leonard & Sons, Company, London, Ont.

1—8-in. x 6-in. x 12-in. Duplex Pump, from the Canada Foundry Company, Ltd., Toronto.

1—75 H.P. Robb Armstrong Engine, direct connected to Westinghouse 50 Kw. A. C. Generator, for lighting purposes.

1—Cochrane Feed Water Heater, from the Canada Foundry Company, Toronto.

1—30-ton Hydro- pneumatic drop pit jack, from Watson Stillman Company New York

1—24-in. Vertical Drill, from John Bertram & Sons Co., Dundas.

1—20-in. Gap Lathe, from The London Machine Tool Co., Hamilton.

1—Emery Wheel Stand.

1—10-ton Hand Travelling Crane, from Smart Turner Company, Hamilton.

1—Pipe Threading Machine.

1—Blacksmith Forge complete with Anvil, Tools, etc.

This roundhouse is now complete with all necessary steam, air, hot and cold water piping, electric lighting, and also the small tools necessary for present requirements.

The new office, stores and bunkroom building in connection with the roundhouse have been completed and equipped with fittings necessary for present requirements.

The coal chutes are well under way, and will be completed shortly.

Electrical transmission lines have been erected at Cochrane to connect the freight shed, new union depot, and stores building, with the electrical plant at roundhouse, and all wiring, etc., necessary for lighting purposes, in connection with the above buildings, completed.

Arrangements are being made to supply the Transcontinental Railway Office Building at Cochrane, with electric light from the T. & N. O. lighting plant.

At North Bay Junction shops, the following new machinery has been installed:

1—42-in. Vertical Boring Mill, from John Bertram & Sons Company, Dundas, Ontario.

1—16-in. x 6-ft. Engine Lathe, from John Bertram & Sons Company, Dundas, Ontario.

1—24-in. Shaper, from John Bertram and Sons Company, Dundas, Ontario.

1—Link Grinder, from The M. C. Hammett Company, Troy, N. Y.

1—Band Re-sawing Machine, from the Hespeler Machinery Company, Hespeler, Ontario.

At Englehart roundhouse, sand house has been erected and equipped with sand drier, and pneumatic apparatus for elevating sand and delivering same to engines.

Locomotive Mileage.

During the year, the locomotives belonging to this Railway have run the mileages as shown below:—

Engine Number.	Miles Run, 1910.	Total Mileage of Engines,
101	25,736	193,472
102	26,312	189,070
103	7,981	167,999
104	23,333	182,797
105	18,862	124,610
106	31,150	127,471
107	28,673	149,405
108	36,478	163,128
109	50,170	186,351
110	7,686	118,624
111	50,522	175,031
112	30,397	177,590
113	37,036	177,657
114	42,107	178,422
115	27,393	88,370
116	16,470	79,384
117	26,502	82,023
118	33,513	91,217

Locomotive Mileage.—Continued.

Engine Number.	Miles Run, 1910.	Total Milage of Engines.
119	9,081	88,418
120	27,753	79,616
121	22,794	75,263
122	27,515	84,533
123	26,844	82,102
124	23,861	69,593
125	25,610	80,586
126	29,536	79,906
127	47,810	49,878
128	43,830	47,226
129	29,797	32,719
130	4,241	5,831
131	37,639	38,422
132	31,091	31,091
150	25,335	119,471
151	33,122	159,694
152	21,955	28,404
153	29,524	33,046
Totals:	1,017,659	3,838,420

On an average, our locomotives have made 100,000 miles between each general repair.

Engine Dispatch.

The following is a statement showing the number of engines dispatched from the different terminal points during the year:

Terminal Stations.	Number of Engines Dispatched.
North Bay Junction	2,997
Cobalt	478
Englehart	3,157
Cochrane	626
Totals	7,258

Repairs and Renewals to Locomotives.

During the year repairs and renewals have been made to locomotives as follows:

Engine 101 was given some light repairs during March, and turned out for work service. This engine is at present in North Bay Junction shop undergoing general repairs, such as driving tires turned, new boiler tubes applied, etc.

Engine 102 was taken into shop on October 1st, 1909, to have driving tires turned and new boiler tubes applied, completed November 15th. This engine also received light repairs during the month of February, such as new smoke stack, sand dome, ledgerwood pipe on steam dome, and headlamp applied, made necessary by accident in spur at mileage 81½ on February 11th.

Engine 103 was taken in shop for a general repair during January, and turned out on April 28th.

Engine 104 was in shop during February undergoing light repairs. This engine was loaned contractors E. F. & G. E. Fauquier at Cochrane, during the latter part of August, and returned on September 10th.

Engine 105 was taken into shop during August, given general repair, and turned out for freight service on October 4th.

Engine 107 received light repairs, and delivered for service on January 10th. This engine was also loaned to Contractors E. F. & G. E. Fauquier on August 25th, and is still in their service.

Engine 108 was given general repair, and turned out of shop on January 26th. This engine had driving tires turned, new boiler tubes applied, engine and tender repainted, and was put into passenger service on trains 1 and 2, between Englehart and Cochrane.

Engine 109 was taken into North Bay Junction shop on June 27th, to have engine truck tires turned, engine truck brasses refitted, guide bars closed, big end brasses renewed, tender wheels changed, and engine and tender repainted, being completed on July 7th.

Engine 110 was given general repair and turned out in first class condition for passenger service, on August 6th. This engine required to have front frames straightened, new pilot and buffer beam applied, etc., on account of being damaged in accident at Cobalt, August 25th.

Engine 112 was taken into shop during March, given thorough overhauling, and new tubes applied, being turned out May 30th.

Engine 113 was taken into shop during month of April, given some light repairs, engine and tender repainted.

Engine 114 was taken into shop for general repairs and new tubes, during January, and was turned out for passenger service on March 12th. This engine was also in shop for repairs to tender tank, and brake rigging overhauled, during July.

Engine 115 at present in shop undergoing general repair.

Engine 116 has been given heavy repairs, had forty-eight boiler tubes renewed, being turned out for freight service on May 17th.

Engines 117 and 118 crossheads lined up, boiler mountings overhauled, running board bracket studs renewed, and intermediate side rod bushings renewed, during month of July.

Engine 119 given thorough overhauling, new tubes applied, and driving tires turned, being completed during August.

Engine 120 taken into shop on September 12th for general repair, and will be completed during November.

Engine 121 given heavy repairs, such as piston rings renewed, tender trucks overhauled, and seventy-five new boiler tubes applied, completed during October.

Engine 122 seventy-five new boiler tubes applied during month of July.

Engine 123 received heavy repairs, such as intermediate side rod bushings renewed, brake rigging overhauled, and one hundred new boiler tubes applied.

Engine 124 given heavy repairs during August, and seventy-five boiler tubes renewed.

Engine 125 given light repair, engine and tender repainted, during month of April. This engine also had eighty-two boiler tubes renewed during June.

Engine 126 at present undergoing general repair, having new tubes applied, driving tires turned, etc.

Engine 127 required to have repairs made to front end, such as new pilot, buffer beam, etc., on account of being damaged in wreck at Temagami on November 25th, 1909.

Engine 130 required to have repairs made to tender, which was damaged in accident at bridge, mileage 119½, December 5th, 1909.

Engine 150 was taken into shop during March, and given some light repairs to motion, etc.

Engine 151 was given a heavy repair during January. This engine also had driving tires turned during month of June. Each engine has had the boiler washed out once every two weeks, when in regular service. Stay-bolts and fire boxes have been examined regularly, boilers tested, and stay-bolts renewed, where necessary.

SMOKE BOX NETTINGS, ASH PANS, AND DAMPERS, HAVE BEEN REGULARLY EXAMINED AT THE END OF EACH TRIP, AND EVERY PRECAUTION HAS BEEN TAKEN AGAINST FIRE FROM THIS CAUSE. DURING DAMP WEATHER, AND AT SUCH TIMES AS THE DANGER FROM THIS SOURCE WOULD BE REDUCED TO A MINIMUM, THE NETTINGS, ASH PANS, AND DAMPERS, HAVE BEEN EXAMINED TWICE A WEEK.

Proper records of the examination of locomotive stay-bolts, nettings, dampers, and also of the boilers washed out, are kept in the Acting Master Mechanic's Office.

The Motive Power Equipment has been generally assigned during the year as follows:—

Engine 101, freight and work service.
Engine 102, freight and work service.
Engine 103, freight service.
Engine 104, freight and work service.
Engine 105, freight and work service.
Engine 106, freight and work service.
Engine 107, passenger and work service.
Engine 108, passenger and freight service.
Engine 109, passenger service.
Engine 110, passenger service.
Engine 111, passenger service.
Engine 112, passenger service.
Engine 113, passenger service.
Engine 114, passenger and freight service.
Engine 115, freight service.
Engine 116, freight and switching service.
Engine 117, freight and work service.
Engine 118, freight and passenger service.
Engine 119, freight and passenger service.
Engine 120, freight and work service.
Engine 121, freight and work service.
Engine 122, freight service.
Engine 123, freight service.
Engine 124, freight service.
Engine 125, freight service.
Engine 126, freight and passenger service.

Engine 127, passenger service.
Engine 128, passenger service.
Engine 129, freight service.
Engine 130, passenger and freight service.
Engine 131, passenger and freight service.
Engine 132, freight service.
Engine 150, switching service at Cobalt.
Engine 151, switching service at North Bay Junction.
Engine 152, switching service at North Bay Junction and Cobalt.
Engine 153, switching service at Englehart.

Coach Cleaning.

Statement showing the number of coaches cleaned at the different terminal stations during the year:

Stations.	Number of Coaches Cleaned.
North Bay Junction	1,931
Englehart	8,018
Cochrane	1,860
Total	11,809

Repairs to Passenger Equipment.

Following passenger equipment has been repaired at North Bay Junction shops:

First class coach, 100 trucks and brake equipment overhauled, interior and exterior of coach revarnished, and trucks repainted, during August.

First class coach 101, received considerable damage to trucks and air brakes, in derailment of trains No. 1, at mileage 186½, February 8th, and necessary repairs have been made. This coach also received a general overhaul during month of October.

First class coach 102 taken into shop during March, given general repair, and revarnished.

First class coach 103 revarnished during December, 1909, also trucks overhauled and painted.

First class coach 106 was given general repair, and revarnished, being completed on April 3rd.

First class coach 109 repaired and revarnished during month of January.

Second class coaches 2 and 28 had vestibules and end sills broken; also mail and express car 3 had end sheathing, coupler and truck end timber broken, by accident in C. P. Ry. yard, on the morning of July 25th. Repairs have been made and Canadian Pacific Railway billed with cost.

Second class coach 8 was taken into shop during April, given general repair and revarnished.

Second class coach 26 had interior and exterior revarnished, trucks overhauled and painted, and turned out on December 23rd, 1909.

Second class coaches 28, 30, 34 and 36 have been given a general repair, interior and exterior of coaches revarnished, and trucks repainted.

Second class coaches 32 and 40 have been revarnished. Coach 40 was also given light repairs during October.

Mail and Express car 1 has been given a general overhaul and revarnished, and mail end of car enlarged.

Mail and Express car 3 was taken into shop during October, 1909, to have mail end of car enlarged, sorting tables enlarged, trucks and air brake equipment overhauled, and coach varnished, being completed during December.

Baggage car 21 has had heater pipes renewed, received general repair, and re-varnished.

During month of October renewed worn-out tires on twelve pairs of coach wheels.

During the year, the following passenger equipment has been equipped with the Safety Car Heating and Lighting Company's Pintsch Gas Lighting System:

First class coach 102, applied in March.
First class coach 109, applied in February.
Second class coach 26, applied in December.
Second class coach 28, applied in February.
Second class coach 30, applied in March.
Second class coach 40, applied in January.
Mail and express car 1, applied in September.
Mail and express car 3, applied in December.

The following passenger equipment has not yet been supplied with the Pintsch Gas Lighting System:

First class coaches 104, 105, 106 and 111.
Second class coaches 24, 32, 34, 36, 38 and 42.
Mail and express cars 5 and 7.
Baggage cars 9, 11, 13 and 15.

Emergency Tool Boxes.

All passenger equipment has been equipped with emergency tool boxes, containing 1 axe, 1 hand saw, and 1 hammer, for use only in cases of emergency.

Repairs to Conductors' Vans.

The following conductors' vans have been repaired during the year:

Van 52 has been thoroughly overhauled and repainted.

Van 53 had trucks overhauled, interior and exterior of van repainted during month of June.

Van 54 was taken into shop during April, given light repair, repainted, and turned out May 28th.

Van 63, which had platform and end framing broken, also steel underframe considerably damaged in wreck at Temagami on November 25th, 1909, is being repaired.

Van 67 at present having repairs made to steel underframe, end sills, and end framing, made necessary on account of being damaged at Tomiko on June 29th.

Van 69 required to have extensive repairs made to car body, on account of being damaged in wreck at bridge, mileage 133½, on December 5th, 1909.

Repairs to Freight Cars, Car Inspection, Etc.

The necessary repairs and renewals have been made by the staffs at North Bay Junction and Englehart to freight cars belonging to this Railway, also repairs to foreign cars handled in interchange. Proper bills for repairs to foreign cars have been rendered monthly against owners, in accordance with Master Car Builders' Rules of Interchange.

Box car 60108, which was used by enginemen as bunk car at Cochrane, until the bunkroom at that point was completed, has been handed over for boarding car services.

Flat car 60073 has been rebuilt into snow flanger No. 3.

Flat car 60157 was fitted up as tool car during the month of June, and handed over to Bridge Department.

Flat cars 60029 and 60031 are at present being fitted up as road cars, for making repairs to cars on the line. These cars will be arranged with a cabin, and have a hand winch inside of car, jacks and other tools, also one pair of skids for loading and unloading wheels, and on the open part of car one pair of each of the different sized wheels. The cabin will be fitted with lockers, bunks, stove, etc., so that if it is necessary for car repairers to put up at any out of the way place over night they will not be deprived of lodging. One of these cars will be stationed at North Bay Junction and the other at Englehart.

A car inspector has been placed at Cobalt, for the purpose of inspecting all freight and passenger cars arriving at that station. This was considered advisable, owing to the fact that a great many of the cars running over our line are billed to Cobalt, and other points between Cobalt and Englehart, thereby not receiving a rigid inspection until their return to North Bay Junction.

All cars coming to us from connecting lines are carefully inspected by our car inspectors before acceptance, and if any defects are found to exist the car is refused until repairs are made, or defect card issued by delivering road if defects are such as would not render the car unsafe to run.

Auxiliary and Work Equipment.

The auxiliary outfits at North Bay Junction and Englehart have been maintained in good condition, and all necessary repairs made to tools, chains, cables, etc., in order to keep them in first-class condition.

Improved Gib Hoist Brakes were applied to steam cranes 1 and 2 during the month of August. Each of the auxiliary equipments has been supplied with a Johnson "First Aid" cabinet. One of these cabinets has also been placed in the shops at North Bay Junction.

The following equipment has been added to each of the auxiliaries:

1 dump bucket, one and one-half tons' capacity.

2 Pearson's push and pull jacks.

2 R. A. skid shoes.

All work equipment, such as steam shovels, ledgerwood rapid unloaders, snow ploughs, snow flangers, etc., have had all necessary repairs made.

Rolling Stock Destroyed.

Mail and express car 25 was destroyed by fire near Doherty, December 24th, 1909, while running on train No. 1.

Car 60106, which was being used by the Road Department as a boarding car, was destroyed by fire at Uno Park on February 20th.

Car 60172 was destroyed by fire at Uno Park on May 15th. This car was being used by the Bridge Department as a boarding car.

Flat car 60135 was destroyed in a wreck on the Canadian Pacific Railway at Humber, Ont., on August 31st. The trucks and air brake equipment belonging to this car have been returned to us, and bill rendered against C. P. Railway covering depreciated value of car body.

Van 61 was destroyed by fire in North Bay Junction yard on the night of February 26th.

Fire Protection.

The restaurant and depot at Englehart have been equipped with the necessary hose, etc.

At Tomika a 2 inch water line has been laid from the water tank to the station and section house, and buildings equipped with the necessary hose and hose connections.

A 2-inch pipe line has been laid from the water tank to section houses and station at Redwater, and necessary valves, hose, nozzles, etc., supplied.

Water and Pump Houses.

All pumping plants and pump houses along the line have been properly maintained, and necessary work done with regard to cleaning boilers and tubes, and repairs to pumps.

At North Bay Junction and Liskeard, where the water is obtained from the town water supply, the water meters have been inspected regularly, and necessary repairs made.

An artesian well has been bored at Cochrane, to a depth of 87 feet.

An artesian well has also been sunk at Earlton, but owing to the supply of water being inadequate, a second well is being bored.

At Swastika the water is now supplied from the Blanche River by a hydraulic ram, and the steam plant shut down, thereby doing away with the services of a pumpman at that point.

Electric Lighting Equipment.

All electrical work in connection with the different buildings and locomotives has been kept up. Electric headlamps have been applied to four locomotives, and the two wrecking cranes have also been equipped with electrical lighting apparatus, to facilitate wrecking operations at night.

The equipment now equipped with Pyle National Electric Lighting outfits are, Nos. 1 and 2 wrecking cranes; Nos. 2, 3 and 4 snow plows; road locomotives 103 105, 106, 108, 111, 112, 113, 114, 115, 116, 118, 119, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131 and 132, while locomotives 101, 102, 104, 107, 109, 110, 117 and 120 are still using oil lamps.

The electric fixtures have been installed in the new depot at Cobalt, and the electric lighting system satisfactorily completed; additional electric lights were also installed in the freight sheds and offices.

At Haileybury extra electric lights were installed in the depot, on account of alterations made to the interior arrangement of the rooms, and the entire lighting system has been made to conform with the regulations of the Canadian Board of Fire Underwriters' specifications.

The Liskeard electric lighting services are also being brought up to the standard required by the Fire Underwriters' inspector.

Experiments have been made with the new "Tungsten" lamps, with results that they are now being used at North Bay and Cobalt, and sufficient are on order to equip Haileybury, Englehart, and Cochrane with this style of incandescent lamp.

Work Done for Outside Companies.

Steam crane No. 1 has been loaned to the Canadian Pacific Railway on several different occasions; C. P. R. Engines have also been supplied with water from North Bay Junction water tank, when requested.

The Temagami Hotel and Steamboat Company at Temagami have been supplied with water during the summer season.

The following work has been done in North Bay Junction shop for Fauquier Bros. at Cochrane.

Eight crosshead gibs machined.

Tires turned on three pairs of driving wheels.

Pattern made for driving box cellar.

C.P.R. engine, No. 51, had boxes repacked and some light repairs made, while en route to Cochrane.

Fauquier Bros. have also been furnished with material for engine repairs, from Cochrane shops, on several different occasions; also supplied with water from Cochrane water tank.

Proper bills have been rendered for all of the above.

The Cleveland Sarnia Saw Mills Company, of Sarnia, have been billed with the cost of repairs to several cars, which were damaged on their line at Diver.

Rolling Stock and Equipment.

The motive power, passenger, freight and other rolling stock of this railway, October 31st, 1910, is comprised as follows:—

32 road locomotives.
4 switch engines.
3 official cars.
14 first class coaches.
21 second class coaches.
7 baggage and express cars.
5 mail and express cars.
19 conductors' vans.
10 stock cars.
147 box cars.
485 flat cars.
12 steel drop-bottom dump cars.
17 Hart convertible cars.
3 snow plows.
3 snow flangers.
4 gravel plows.
2 steam cranes.
3 steam shovels.
3 ledgerwood rapid unloaders.
2 auxiliary tool cars.
10 flat cars assigned to special service.

Statement Covering Performances of Locomotives.

Year ending October 31st, 1910.

Locomotive Mileage.

Passenger service	383,905
Freight "	361,960
Switch "	109,666
Work "	142,701
Total	998,232

Average Mileage of Locomotives.

Passenger service	40,410
Freight "	28,957
Switch "	28,609
Work "	33,577
All locomotives in service	33,182

Total cost of repairs	$65,123 25
" Enginehouse Expenses	15,263 31
" Fuel	215,795 68
" Lubricating oils and waste	4,486 71
" Miscellaneous supplies	1,646 45
Total	$302,315 40

Cost in Cents per Locomotive Mile, Passenger Service.

For Repairs	5.92
" Enginehouse expenses	1.59
" Fuel	17.76
" Lubricating oils and waste	.42
" Miscellaneous supplies	.14
Total	25.83

Cost in Cents per Locomotive Mile, Freight Service.

For Repairs	7.85
" Enginehouse expenses	1.62
" Fuel	26.17
" Lubricating oils and waste	.47
" Miscellaneous supplies	.19
Total	36.30

Cost in Cents per Locomotive Mile, Switch Service.

For Repairs	3.85
" Enginehouse expenses	2.15
" Fuel	19.74
" Lubricating oils and waste	.53
" Miscellaneous supplies	.19
Total	26.46

Cost in Cents per Locomotive Mile, Work Service 29 21

Cost in Cents per Locomotive Mile, All Service.

For Repairs	6.52
" Enginehouse expenses	1.53
" Fuel	21.62
" Lubricating oils and waste	.45
" Miscellaneous supplies	.16
Total	30.28

No. of lbs. of coal consumed per	passenger	locomotive mile	81
" "	freight	"	121
" "	switch	"	91
" "	locomotive mile, all service		99
Miles run per pint of lubricant,	passenger	locomotive miles	19.3
" "	freight	"	17.4
" "	switch	"	16.5
" "	total	"	18.1
Total No. pints engine, valve and car oil used			55,130
Total No. tons of coal consumed			49,416

Report of Dr. R. C. Lowrey.

I herewith submit to you my medical report for work performed from November 1st, 1909, to October 31st, 1910, viz.:—

	Cases.
(1) Surgical:—	
Amputation of arm	1
Amputation of toes	1
Rectal abscess	2
Fractured ribs	1
Minor injuries	13
(2) Medical:—	
Quinsy	1
Pneumonia	4
Pleurisy	1
Whooping Cough	4
Rheumatism	5
Otites Media	1

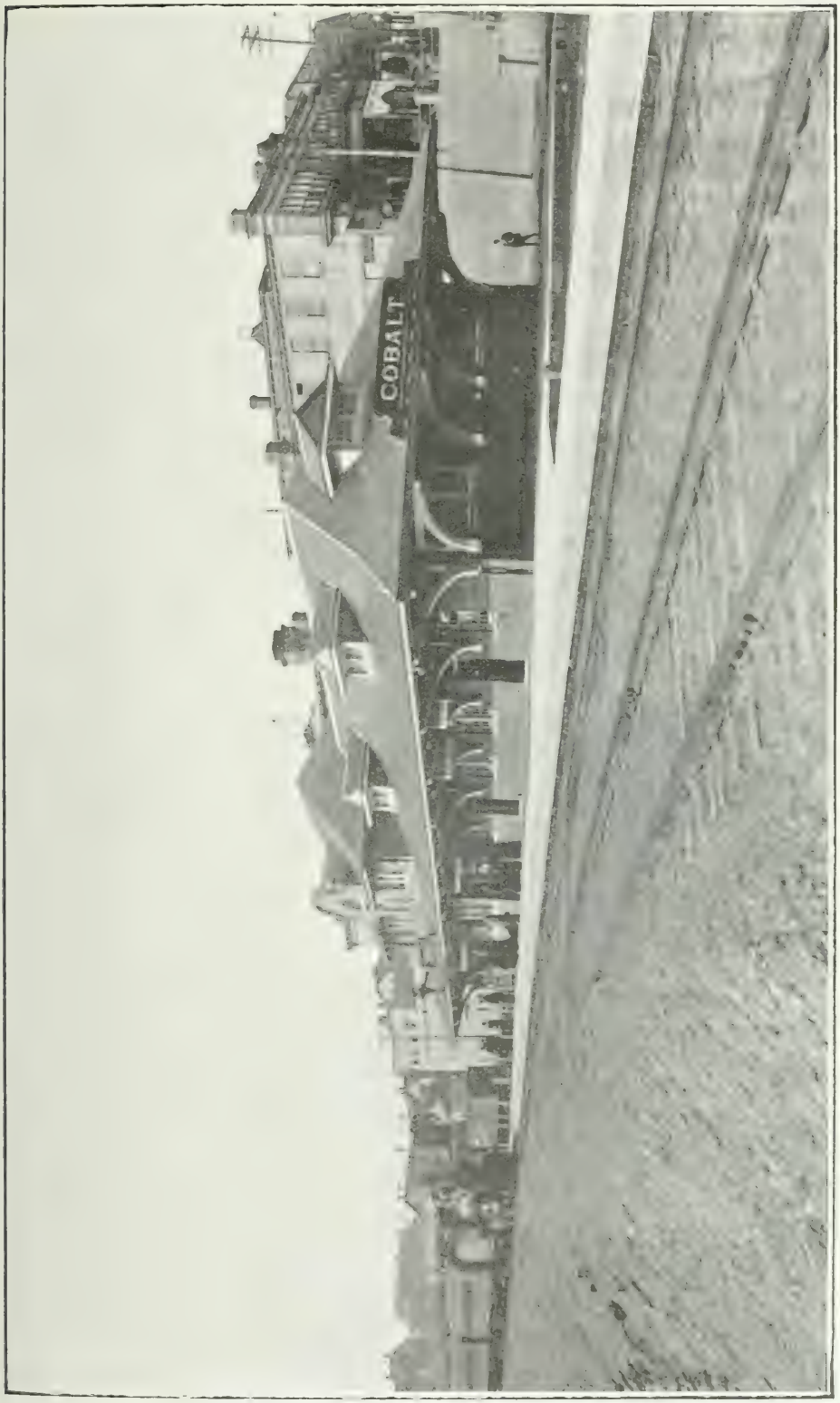
Also a number of minor ailments, including dysentery, lagrippe, bronchitis, etc.

Report of Dr. A. McMurchy.

The following casualties to employees and passengers were treated by me during the year ending October 31st, 1910:—

1 Brakesman	Legs jammed	Recovered.
1 Brakesman	Shoulder contused	Recovered.
1 Brakesman	Jammed between cars. Abdomen and back contused, also thigh contused and skin abrased	Recovered.
1 Passenger	Run over at Temagami. Right leg crushed and toes on left foot crushed. Lacerated wounds on chin and forehead; legs and toes amputated	Died.
1 Car Inspector	Hand jammed	Recovered.
1 Laborer	Right arm broken	Recovered.
1 Brakesman	Two fingers crushed	Recovered.
1 Laborer	Fractured hand	Recovered.
1 Laborer	Wounded wrist	Recovered.

Waiting Room, Cobalt Station.



Cobalt Station.

MINING ENGINEER'S REPORT
FOR 1910

Report of Arthur A. Cole, Mining Engineer

Mining in the Districts Served by the Temiskaming and Northern Ontario Railway.

Cobalt Silver District.

As 1910 was a remarkable year for the mining industry in general, so it was for the silver mining industry of Northern Ontario in particular. The year has upheld the record of its predecessors, which makes the history of mining in the Cobalt District one of rapid and unbroken progress. Although business throughout the district seemed quiet, nevertheless good steady development was going on and the fact remains to confound the skeptic and the pessimist that the physical condition of Cobalt to-day is better than ever before in its history.

TABLE I.—SILVER PRODUCTION OF THE COBALT DISTRICT.

Year.	Tonnage.	Value.
1904	158 55	136,217 00
1905	2,336 01	1,485,570 00
1906	5,836 59	3,573,908 00
1907	14,851 34	6,155,391 00
1908	25,362 10	9,133,378 00
1909	29,942 99	12,356,422 00
1910	33,976 97	14,500,000 00 (Estimated)
	112,464 55	47,340,886 00

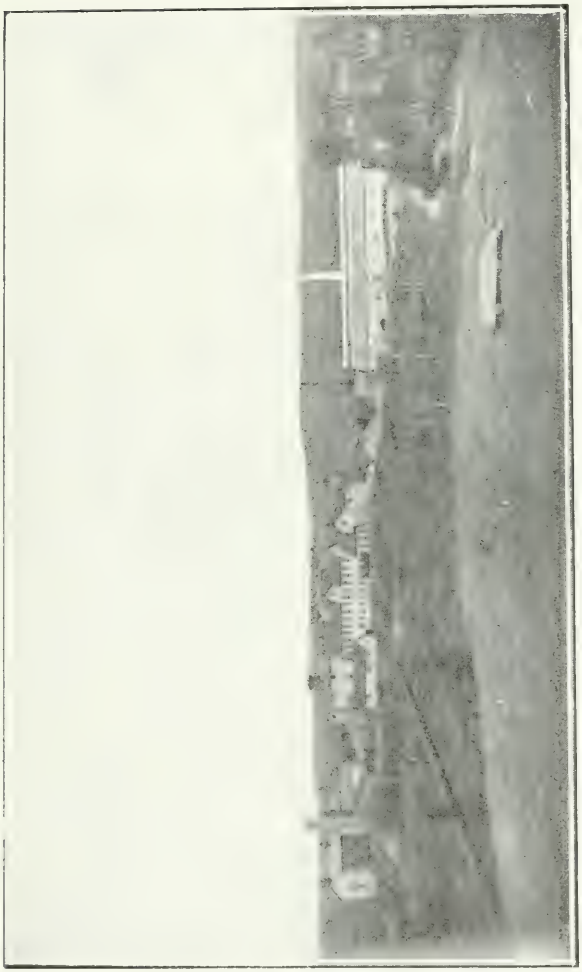
The remarkable fact about this total production of $47,340,886.00 is that nearly 50 per cent. of this amount has been repaid to shareholders in dividends.

With an estimated silver production of over 29,000,000 ounces Cobalt produced in 1910 over 13 per cent. of the world's production for the year, and takes third place among silver producing countries, as shown by the following statement taken from the *Engineering and Mining Journal*.

TABLE II.—SILVER PRODUCTION OF THE WORLD.

Country.	1909	1910
Mexico	73,949,432	72,574,220
United States	54,721,500	56,438,695
Canada	27,878,590	32,878,590
Australasia	16,359,284	16,359,284
World's Production	201,215,633	217,788,714

The following table (3) shows the tonnage of ore production from Cobalt for the calendar year 1910, and table 4 the total tonnage from the opening up of the camp.



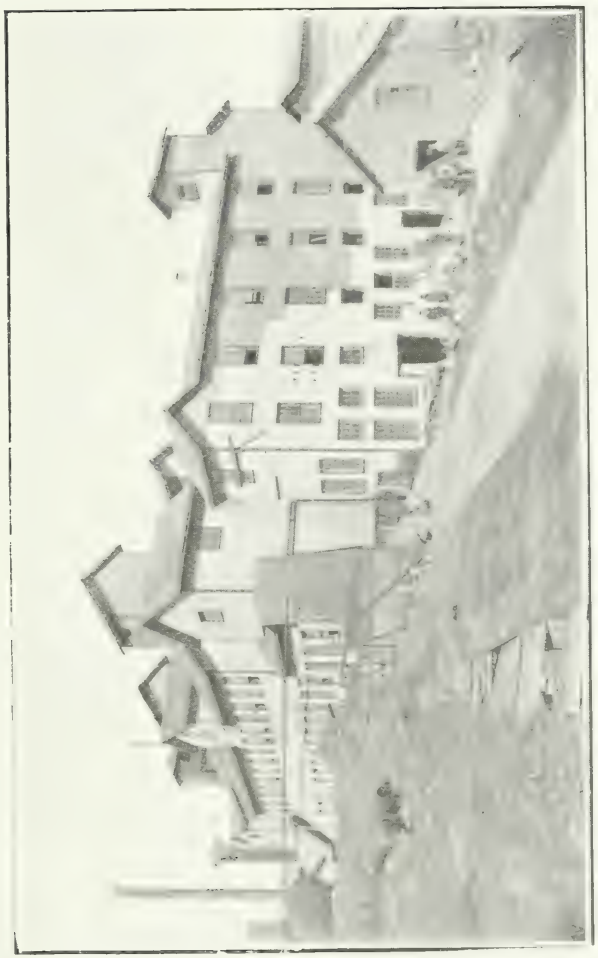
Deloro Mining and Reduction Co.—General view.

Table III.

Shipments From the Cobalt District for the Calendar Year 1910.

(In Tons of 2,000 Pounds.)

Mine.	Jan.	Feb.	Mar.	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1. Beaver					57.53		30.08		25.00		27.45		140.06
2. Buffalo	88.04	59.53	88.58	118.97	84.85	65.95	109.55	139.50	114.90	81.25	113.60	121.05	1,185.77
3. Casey Cobalt	9.50			20.00			8.40			10.50			48.40
4. Chambers-Ferland			29.43	83.68	93.25	183.92	120.15	63.70	90.71	92.48	64.10	64.50	885.92
5. City of Cobalt	32.60	64.99	53.23		26.70	29.45		27.93	33.00		31.50	30.00	329.40
6. Cobalt Central	41.20	42.06	19.95	20.90	21.58		42.00		55.48			42.45	285.62
7. Cobalt Lake	66.00			31.30		20.00				20.00	60.80	98.70	296.80
8. Cobalt Townsite				7.25			14.10	86.25	29.45	99.64	35.30	39.00	310.99
9. Colonial	40.88			21.80		20.42			20.75	26.05	23.65	25.05	178.60
10. Coniagas	61.15	62.31	53.45	80.51	55.85	59.50	88.30	89.35	87.95	128.87	242.68	258.36	1,268.28
11. Crown Reserve	181.97	288.61	236.40	236.65	325.95	361.89	302.46	309.47	223.85	119.27	105.80	122.93	2,814.25
12. Drummond	330.76									30.00	988.90	844.75	2,194.41
13. Hargrave			20.95			30.00	59.68	30.00	61.60	51.45	30.00	60.00	343.68
14. Hudson Bay		31.18	30.16			51.64	28.20	57.30		31.65		30.20	260.33
15. Kerr Lake	152.05	363.26	300.20	625.10	279.66	719.40	703.03	600.58	210.50	666.17	313.55	155.28	5,088.78
16. King Edward	25.05	21.58	20.68	20.65		23.16						23.00	134.12
17. LaRose	366.37	567.00	717.64	434.96	567.86	412.64	423.25	402.55	223.11	342.69	377.53	295.93	5,131.53
18. McKinley-Darragh	71.55	32.20	258.32	120.97	192.05	138.80	198.85	243.58	186.35	284.54	300.45	365.73	2,393.39
19. Nipissing	384.55	409.06	510.37	628.95	242.74	479.26	583.68	644.24	606.99	623.64	787.80	932.35	6,833.81
20. O'Brien	48.05	65.45	63.75	93.55	29.65	31.98	21.75	27.85	31.10	59.69	64.75	71.00	608.57
21. Peterson Lake, (Little Nipissing)		85.22			49.80	28.05	47.05			32.50	13.74	57.40	313.76
22. Provincial					32.05						20.00		52.05
23. Right of Way	63.15	62.74	97.55	81.60	29.00	59.70	100.67	110.50	41.16	69.35	113.56	152.43	981.41
24. Rochester								28.30					28.30
25. Silver Cliff		33.00			25.65	21.24		25.35	25.00		26.60		156.84
26 Temiskaming	60.45	29.80	29.15	91.76	70.00	180.00	136.36	185.26	101.20	70.90	60.70	103.54	1,119.12
27. Trethewey	27.26	31.00	32.98	95.48	60.00		66.75	40.00	20.06	22.52	44.80	95.85	536.64
28. Waldman			31.99										31.99
29. Wyandoh							24.15						24.15
Totals	2,050.58	2,248.99	2,594.78	2,814.08	2,243.17	2,917.00	3,108.46	3,111.89	2,188.10	2,863.16	3,847.26	3,989.50	33,976.97



Deloro Mining and Reduction Co.—Looking north.

Table IV.

Ore Shipments from the Cobalt District for the Years 1904 to 1910.

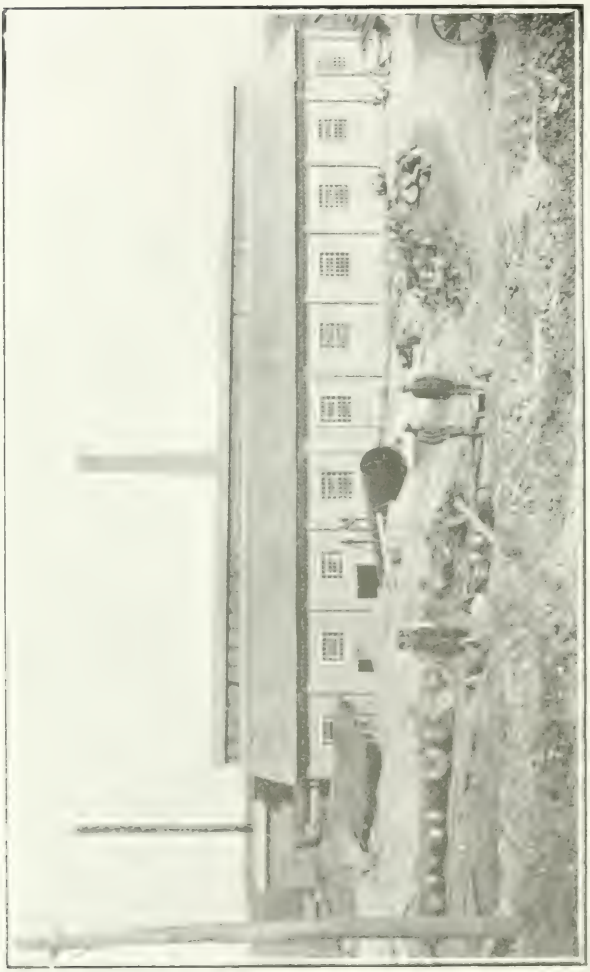
(In Tons of 2,000 pounds.)

MINE.	1904	1905	1906	1907	1908	1909	1910	Totals
1. Bailey	.....	.....	30.00	.....	88.80	36.85	.....	155.65
2. Beaver	.....	.....	.....	.....	.....	51.38	140.06	191.44
3. Buffalo	.....	200.80	992.80	1,241.54	536.90	648.86	1,185.77	4,806.67
4. Casey Cobalt	.....	.....	.....	.....	10.00	8.50	48.40	66.90
5. Chambers-Ferland	.....	.....	.....	.....	223.89	517.88	885.92	1,627.69
6. City of Cobalt	.....	.....	.....	50.61	761.04	566.82	329.40	1,707.87
7. Cobalt Central	.....	.....	.....	77.33	187.99	339.01	285.62	889.95
8. Cobalt Lake	.....	.....	.....	.....	225.97	95.47	296.80	618.24
9. Cobalt Townsite	.....	.....	.....	143.22	177.71	27.35	310.99	659.27
10. Colonial	.....	.....	15.00	40.38	.....	.....	178.60	233.98
11. Coniagas	.....	30.60	422.02	2,447.37	610.25	806.93	1,268.28	5,585.45
12. Crown Reserve	.....	.....	.....	.....	657.35	3,167.52	2,814.25	6,639.12
13. Drummond	.50	32.15	274.70	104.13	1,161.38	1,225.47	2,194.41	4,992.74
14. Foster	.....	83.85	117.00	312.13	191.20	113.90	.....	818.08
15. Green Meehan	.....	.....	37.03	98.39	.....	.....	.....	135.42
†16. Hargrave	.....	28.45	.....	.....	.....	.....	343.68	372.13
17. Hudson Bay	.....	.....	.....	194.53	1,094.23	743.64	260.33	2,247.73
18. Imperial Cobalt	.....	.....	.....	14.61	.....	.....	.....	14.61
19. Kerr Lake	.....	54.95	158.35	319.76	660.24	1,173.42	5,088.78	7,455.50
20. King Edward (Watts)	.....	19.00	.....	31.12	338.19	146.58	134.12	669.01
21. LaRose	60.05	607.86	854.61	2,815.45	4,843.17	6,757.21	5,131.53	21,069.88
†22. Lawson	.....	14.61	.....	61.12	.....	.....	.....	75.73
23. McKinley-Darragh	20.00	447.09	80.45	742.42	1,808.39	1,056.49	2,393.39	6,548.23
24. Nancy Helen	.....	.....	.....	30.10	201.32	116.32	.....	347.74
25. Nipissing	57.00	486.02	2,125.08	2,538.26	3,571.96	6,470.52	6,833.81	22,082.65
26. Nova Scotia	.....	.....	43.95	272.21	237.95	224.79	.....	778.90
27. North Cobalt	.....	.....	.....	.....	.....	6.87	.....	6.87
28. O'Brien	26.32	114.18	1,491.61	3,459.51	3,459.51	1,419.11	608.57	7,119.30
29. Peterson Lake (Leases)								
" (Little Nipissing)	.....	.....	.....	.....	40.67	39.62	313.76	394.05
" (Nova Scotia)	.....	.....	.....	.....	.....	121.15	.....	121.15
30. Provincial	.....	.....	.....	.....	75.84	.....	52.05	127.89
‡31. Princess	.....	.....	.....	3.93	.....	.....	.....	3.93
32. Red Rock	.....	.....	.....	45.71	.....	.....	.....	45.71

33. Right of Way			46.25	129.37	750.04	1,608.99	981.41	3,516.06
34. Rochester								28.30
35. Silver Bar					.58			.58
36. Silver Cliff					160.44	149.06	156.84	466.34
37. Silver Leaf		9.00		46.36	197.03			252.39
38. Silver Queen		44.63	130.94	478.57	885.70	316.64		1,856.58
39. Temiskaming				204.32	795.20	852.14	1,119.12	2,970.78
40. Temiskaming Cobalt			20.47	67.98				88.45
41. Trethewey	21.00	218.58	198.48	833.58	1,408.69	1,134.50	536.64	4,351.47
‡42. University		16.00	155.28	60.23				231.51
43. Victoria					.47			.47
44. Violet		16.00	20.00					36.00
45. Waldman							31.99	31.99
46. Wyandoh							24.15	24.15
Totals	158.55	2,336.01	5,836.59	14,851.34	25,362.10	29,942.99	33,976.97	112,464.55

† The shipment in 1905 was made by the White Silver Mining Company, the former owner of the Hargrave property.

‡ Shipments from Lawson, Princess and University since 1907 were included with LaRose.



Deloro Mining and Reduction Co.—New oxide plant.

Silver Market During 1910

The price of silver during 1910 showed a general strengthening over the previous year, the average price being 53.486 as against 51.502. This rise means an increase in the yearly earnings of Cobalt of over $860,000.00, or about $300,000 for every one cent. of rise in the price of silver.

As in former years, most of the demand for silver came from the East. Early in the year China was a heavy buyer, but India proved the steady consumed. Judging from the fact that stocks have been well absorbed, and now are low, it is probable that the present prices will rule or improve for some time to come.

The following table gives the average monthly and the yearly average of silver prices, in cents per fine ounce at New York quotations, for 1909 and 1910.

Table V. indicates the geographical distribution of the shipments for treatment.

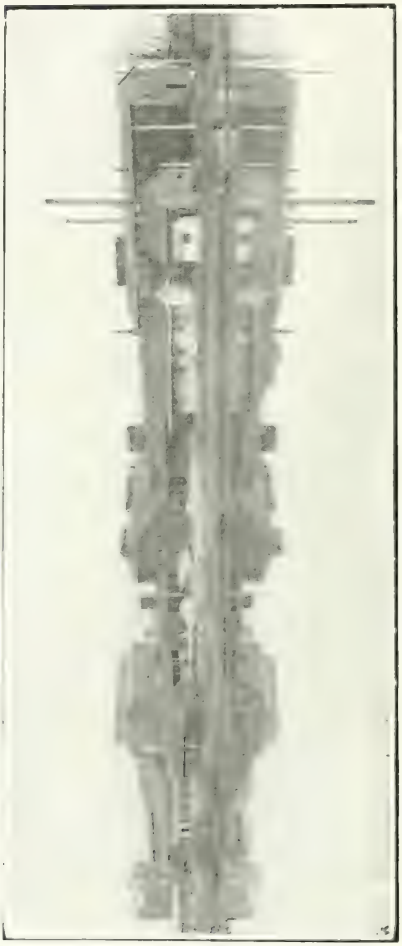
Monthly Average Prices of Silver

Month.	1909	1910
January	51.750	52.375
February	51.472	51.534
March	50.468	51.454
April	51.428	53.221
May	52.905	53.870
June	52.538	53.462
July	51.043	54.150
August	51.125	52.912
September	51.440	53.295
October	50.923	55.490
November	50.703	55.635
December	52.226	54.428
Total Average	51.502	53.486

TABLE V.

Country.	1097		1908		1909		1910	
	Tons.	%	Tons.	%	Tons.	%	Tons.	%
Canada	2,585.05	14.40	7,401.14	29.18	10,230.64	34.47	9,922.40	29.20
Great Britain.	167.13	1.13	222.08	.88	30.25	.10	393.73	1.15
United States.	12,098.95	81.47	17,439.42	68.76	19,575.59	65.08	23,428.70	68.96
Germany			229.46	1.18	106.51	.35	232.14	.69
Total	14,851.34	100.00	25,362.10	100.00	29,942.99	100.00	33,976.97	100.00

The above tables III., IV. and V. refer to shipments of ore and concentrates. These statements do not include the bullion shipments which started in 1910 and by the end of the year had become an important feature of the silver production. The largest quantities were shipped from the mills using cyanide, while several of the other mills produce bullion from the melting of the nuggets picked from the



Plant of the Coniagas Reduction Co.

ore before being milled. The establishment of a sampling plant is alsoresponsible for further bullion shipments, for in the early part of the sampling process a ball-mill separates nuggets from the ore when rich, and these are melted and the resultant bullion is shipped separately.

The following statement will illustrate the importance of these bullion shipments:

TABLE VI.

Mine.	Silver Bullion Ounces.	Value.
Beaver	3,827.25	$1,713 62
Buffalo	119,889.31	64,648 87
Cobalt Gem	10,800.00	5,800 00
Colonial	2,691.50	1,316 62
Crown Reserve	90,000.00	50,000 00
Hudson Bay	12,798.00	6,160 49
King Edward	407.75	199 46
LaRose	47,429.50	23,201 42
Nipissing	5,356.89	2,793 11
Nova Scotia	115,000.00	62,204 26
Peterson Lake	76,805.00	41,795 74
O'Brien	350,714.74	188,085 45
Silver Leaf	2,677.50	1,309 77
Silver Queen	1,172.00	519 87
Silver Cliff	3,566.75	1,683 32
Temiskaming	94,296.50	46,348 20
Trethewey	8,270.25	4,035 13
Totals	945,702.94	501,815 33

Some ounces are given gross while others are fine ounces.

Mining Costs at Cobalt.

The cost of producing an ounce of silver depends on a great variety of conditions. Two of the most important factors in Cobalt are the size of the ore bodies and the grade of the ore. Economies in mining while still very important do not occupy, in a high grade camp like Cobalt, the important position that they must necessarily occupy in a low grade camp.

The amount of development work carried on by a mining company during any particular year may also greatly influence the cost of producing silver for that year.

Obviously it would be unfair to draw comparisons between different properties on the cost of producing silver per ounce, but a general figure for the camp that should be of value in making comparisons with other silver camps, may be worked out as follows:—

For the years 1904 to 1910.
Tonnage shipped..... 112,465
Value..... $47,340,886

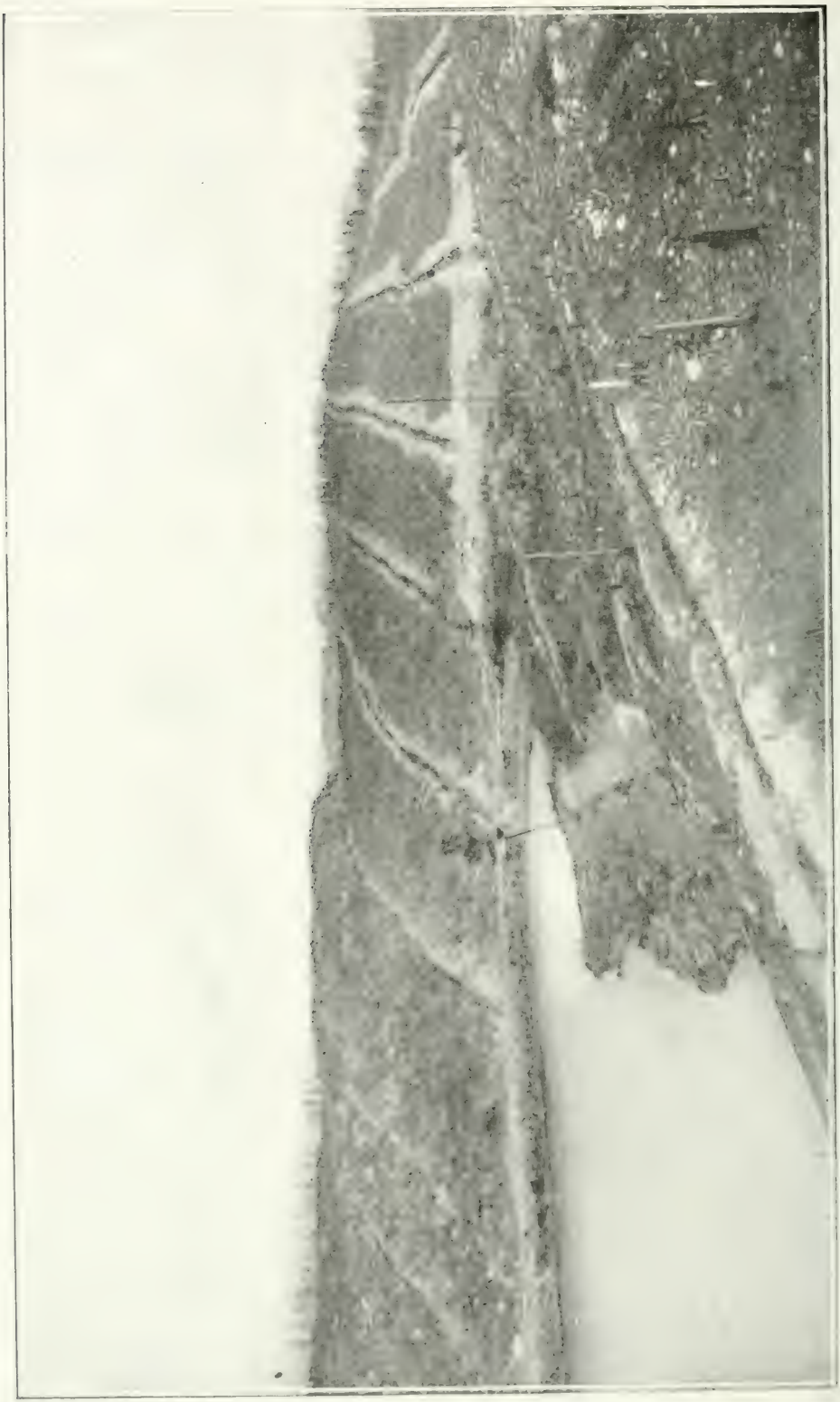
Total dividends declared to and cash reserves as on January 1st, 1911, about $29,000,000.

Cost per ton of ore shipped $\frac{47,340,886 - 29,000,000}{112,465.} = \$163.00.$

Taking the year 1910.
Tonnage shipped..... 33,977

Total costs are 33,977 + 163 = $5,538,251.
Ounces silver produced were..... 29,000.00

Cost of production per ounce $\frac{5,538,251}{29,000,000.} = 19.1$ cents.



Trenching on the Drummond property.

By the above method of calculation all costs are included, all plant is written off, and all development is accounted for, everything being charged up against the ore shipped. In the richer mines the costs will necessarily be below this figure and in this connection a few of the following may be of interest.

The costs per ounce given by the

Crown Reserve,
McKinley-Darragh,
Kerr Lake and
Nipissing Company, in their last annual reports,

will average 13.06 cents, the Crown Reserve holding the record at 10.31 cents.

In the above calculation it should be noted that the figure of $163.00 is the cost per ton of *ore shipped*.. In order to find out the cost per ton of ore mined it is necessary to take into account the tonnage milled and the figure then obtained is—

Cost per ton of *ore mined*, $16.65.

More correctly this should be termed Ore Mined and Treated, as the large tonnage broken and stored in stopes or on dumps for future treatment is disregarded.

The ore reserves of the mines of Cobalt have in the past been a disquieting feature to numerous shareholders. In many cases the policy was to take out ore as soon as found, disregarding development in the meantime. This precarious method of working gave some mines temporary setbacks, but gradually better practice has prevailed, and the year 1911 opens with larger ore reserves developed than ever before, making the physical condition of the camp to-day the best in its history.

The reserves now equal *two years' production at the present rate of output*, 1911 promises to surpass that of its immediate predecessor.

Many rich finds have been made during 1910 but they were mostly on properties that were already shippers. One of the most noteworthy of these, on account of its being in Keewatin formation, was the rich ore shoot located on the two hundred foot level of the Lawson Mine.

Power Development.

One of the outstanding features of 1910 in the development of Cobalt was the introduction of electric and compressed air power from water-powers in the district.

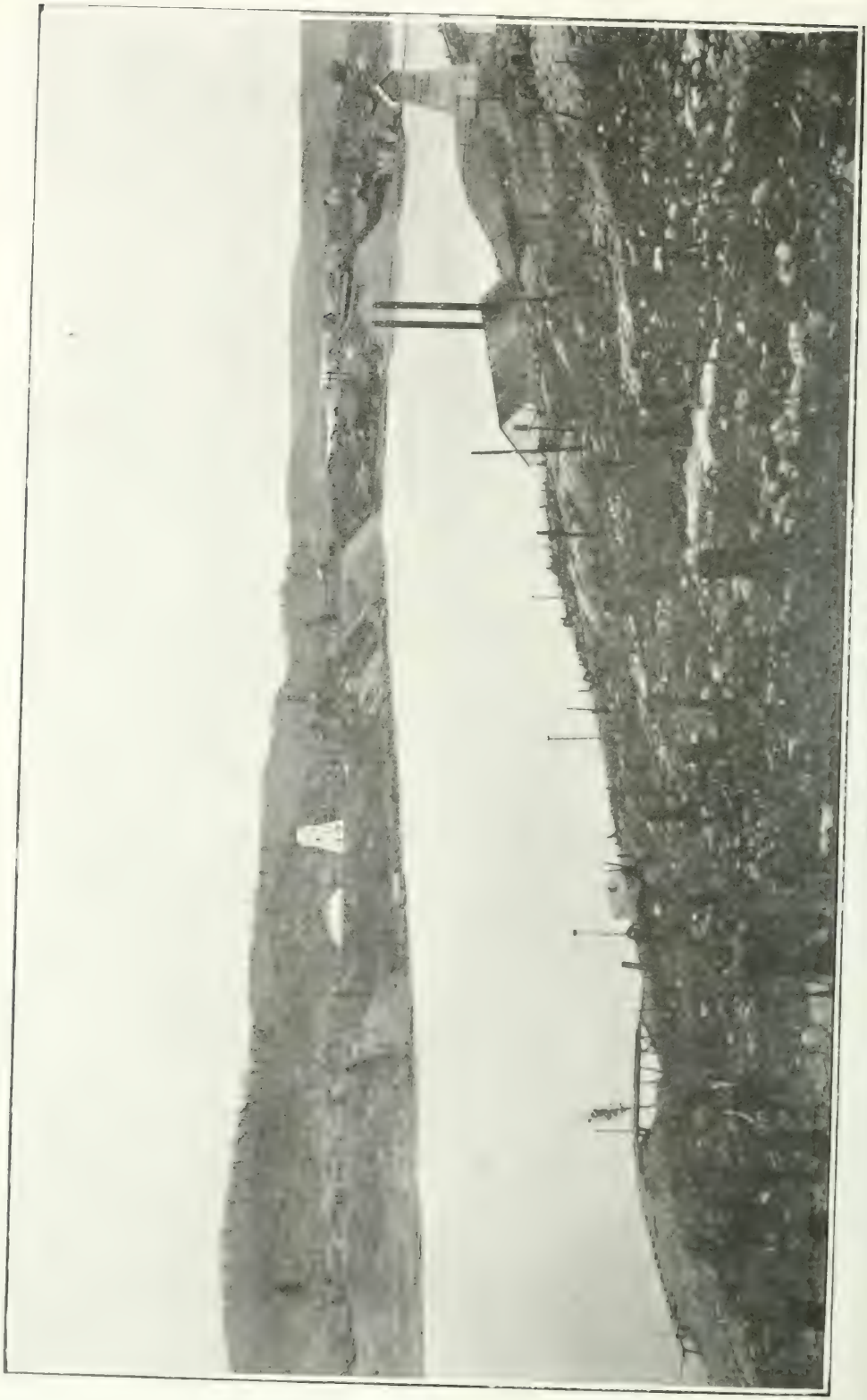
The three companies that have developed the water powers are:

1. Cobalt Power Company.
2. Cobalt Hydraulic Power Copmany.
3. British Canadian Power Company.

The Cobalt Power Company has developed 3,000 horse-power at Hound Chute, on the Montreal River, six miles from Cobalt, and this is delivered as electrical energy.

The Cobalt Hydraulic Power Company has developed 4,000 to 5,000 horse-power at Raged Chutes, on the Montreal River, and compresses air by the Taylor System. The compressed air is brought to Cobalt through 9 miles of 20-inch steel pipe.

The British Canadian Power Company, formerly the Mines Power, Limited, has a capacity of 8,000 horse-power, its generating plant being 22 miles from Cobalt, on the Matabitchouan River. Power is brought into Cobalt as electrical energy, where a great part of it is converted into compressed air by electrically driven air compressors.



Kerr Lake—Southeast end.

Previous to these power developments the haulage of coal to Cobalt by the Temiskaming and Northern Ontario Railway was an important item to the Railway. The following statement of coal received at Cobalt for the two years, 1909 and 1910, illustrates how quickly the shipments were cut down after the advent of the developed power in May, 1910.

Coal Received in Cobalt.

Month.	1909—Tons	1910—Tons.
January	7,687	8,378
February	8,136	8,462
March	10,173	12,212
April	9,930	3,381
May	5,771	3,079
June	4,102	1,817
July	5,677	702
August	5,060	2,106
September	6,173	2,016
October	9,007	1,817
November	14,957	3,295
December	18,743	5,596
Totals	105,416	52,861

The new power has proved very convenient, particularly in opening up new work, where the cost of new plant is thus obviated. Where plants are already installed the difference is not so noticeable.

Concentration.

Thirteen reduction mills are now operating in the Cobalt District; one more is nearing completion, and several others are contemplated. Ten use water concentration, while of the other three two, viz., the Buffalo and O'Brien, partly water and partly cyanide, and the third, viz., the Nova Scotia, uses water concentration with pan amalgamation for the concentrates and synidation for the tailings.

The following list of mills shows their respective daily capacities running full load.

Mill.	Capacity in Tons.
1. Buffalo	150
2. Cobalt Central (Standard Cobalt)	100
3. Colonial	50
4. Coniagas	160
5. King Edward	36
6. McKinley Darragh	120
7. Nipissing Reduction	75
8. Northern Customs	200
9. Nova Scotia	100
10. O'Brien	90
11. Silver Cliff	80
12. Temiskaming	80
13. Trethewey	100
Under Construction.	
14. Hudson Bay	50
Total	1,391

The importance of this industry is shown by the following table, which gives the tonnage handled by the mills during 1910.

Concentration in Cobalt During 1910.

Mills and Mines.	Tons Milled.	Concentrates Jigs.	Concentrates Tables.	Totals.	Concentration Ratio.
1 Buffalo	39,038.00	254.36	715.90	970.26	40 to 1
2 Cobalt Central					
Cobalt Central	22,350.00	120.01	184.10	304.11	73 to 1
Bailey	1,333.11	8.89	15.93	24.82	54 to 1
Hargraves	103.90	2.49	1.79	4.28	25 to 1
Hudson Bay	252.00	4.35	3.57	7.92	34 to 1
Kerr Lake	413.33	11.26	13.70	24.96	17 to 1
3 Colonial	7,388.00	5.00	73.00	78.00	95 to 1
4 Coniagas	38,696.90			916.70	42 to 1
5 King Edward	8,793.78	37.83	105.76	143.59	61 to 1
6 McKinley-Darragh	36,714.00	464.00	1,371.00	1,835.00	20 to 1
7 Nipissing Red Co					
Cobalt Lake	200.50	1.05	3.96	5.01	40 to 1
Nipissing	13,537.50	104.60	220.60	325.20	41 to 1
Right of Way	97.60	3.10	3.00	6.00	16 to 1
8 Northern Customs					
City of Cobalt	9,375.93	21.62	171.93	193 55	58 to 1
La Rose	32,303.05	131.35	869.62	1,000.97	32 to 1
9 Novia Scotia					
Novia Scotia	7,475.00				*
Peterson Lake Lease	3,402.00				*
10 O'Brien	25,687.50	125.50	112.00	237 50	*
11 Silver Cliff	15,402.00	34.01	103.52	137.53	112 to 1
12 Temiskaming	21,949.00	76.17	642.02	718.19	31 to 1
13 Trethewey	21,000.00			208.00	101 to 1
Total	305,513.10			7,141 09	39 to 1

A comparison with the two previous years illustrates how rapidly this phase of the Camp's activity is developing:

Year.	Ore Milled.	Concentrates.	Ratio.
1908	49,424.00	1,093.85	45 to 1
1909	126,421.30	3,241.50	39 to 1
1910	305,513.10	7,141.09	39 to 1
Total	481,358.40	11,476.44	

Nearly one quarter of the ore shipments from Cobalt now consist of concentrates and this proportion is rising.

The great variation in the concentration ratio is due mainly to the different varieties of ore treated. For instance, the McKinley-Darragh ore that was reduced 20 to 1 was Huronian conglomerate, and slate, heavy with silver bearing smaltite and niccolite, while the Silver Cliff ore that gave a reduction ratio of 112 to 1 was diabase with little or no mineralization beside the native silver contained.

The Buffalo mill, in addition to the concentrates shown, produced 90,304 fine ounces of silver from a cyanide treatment of 11,388 tons of slimes.

*The Nova Scotia and O'Brien are omitted from above ratio, as they use Cyanide, and shipments from their mills are wholly or in large part bullion instead of ore.

Trenching on the Nipissing

The bullion produced by the O'Brien Mill in 1910 consisted of 335 bars containing a total of 332,061 fine ounces of silver. The average silver contents of the ore milled was 30.4 ounces.

In the case of the Nova Scotia Mill the final product was entirely in silver bullion and amounted to a total of 296,800 fine ounces, made up of 181,880 ounces from the Peterson Lake Lease, and the remaining 115,000 ounces from the Nova Scotia Mine itself.

There is hardly a shipping mine in the district that does not produce a certain amount of milling ore, and even when none of the above mills are used some method of concentration more or less elaborate is adopted. This is illustrated by the Savage, Crown Reserve and Provincial mines, where, after hand-picking, jigs or tables are employed, giving a partial mechanical concentration.

A small mill has been erected on the Nipissing property, but this is simply for experimental purposes.

The average extraction in the mills in the district is about 80 to 85 per cent., depending on the character of the ore, and grade of the mill heads, at an average cost of about $3.00 per ton.

The grade of ore treated will average about 25 ounces per ton, varying from 100 as a maximum down to 10 ounces per ton. Above 100 ounces it will usually pay to ship to the smelter without further treatment.

From the following mill flow-sheets, though only drawn in the barest outline, a fair idea may be gleaned of the general methods of concentration adopted.

It will be noticed that no two flow-sheets are exactly alike, but this is only natural, as the ore varies greatly in physical characteristics, not only in the different mines, but in different parts of the same mine.

Sampling.

A thoroughly up-to-date sampling plant was erected and put into operation by the beginning of July, 1910, by Messrs. Campbell and Devell, of Cobalt. The site chosen is on the LaRose property, adjoining the Temiskaming and Northern Ontario Railway line towards the north of the town of Cobalt. It is thus easily accessible from wagon roads or railway.

The plant is designed to sample the high grade output of the mines, and has a capacity of 30 tons per day.

The advantages of having a sampling works in the district, conveniently situated for the use of the mines, are manifold, some of which are as follows:

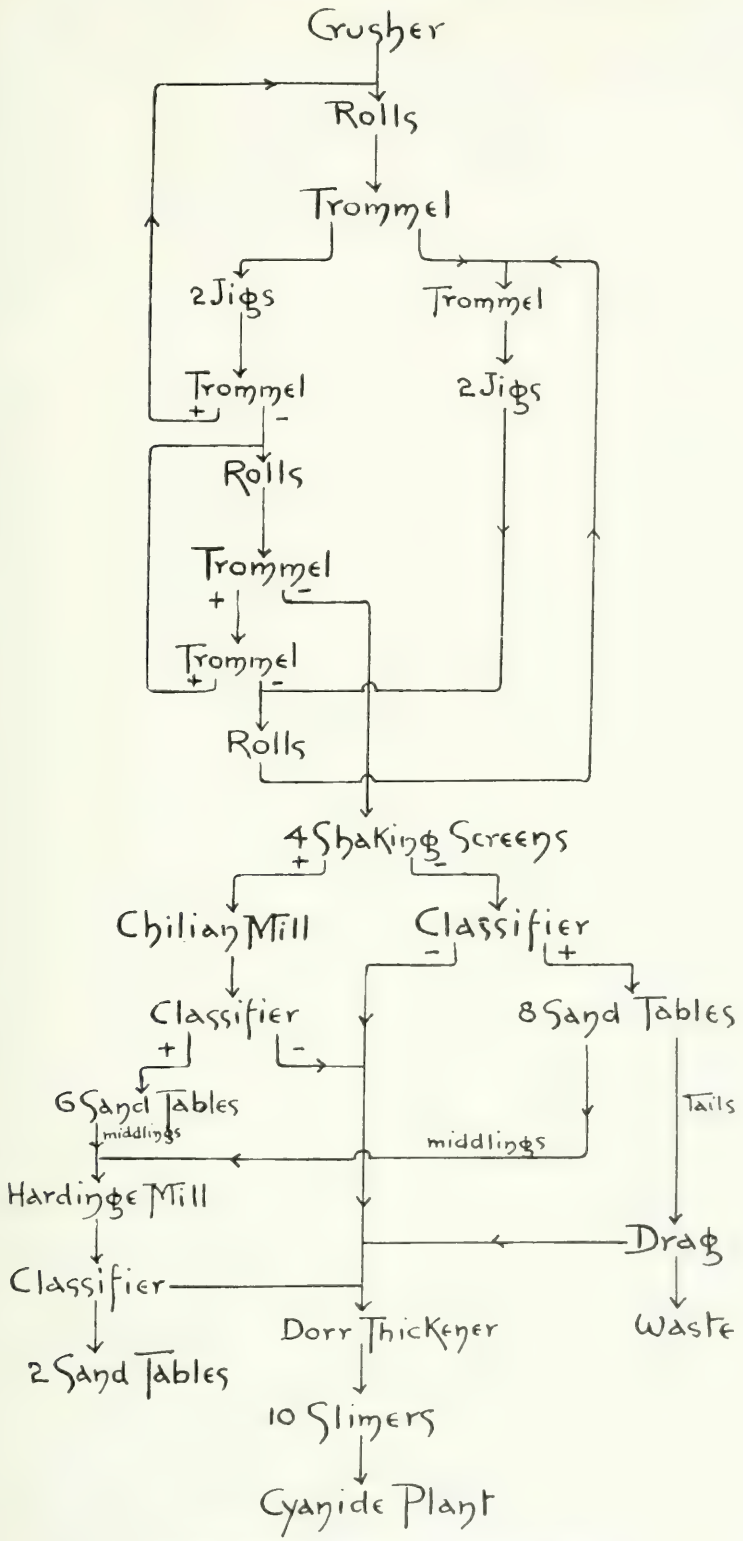
1. It permits of an accurate sampling of entire carload lots, in place of a preliminary and approximate sampling at the mines. The sampling should be accurate, for the entire lot is finely ground, divided into four equal portions, and each portion sampled, thereby providing four separate and distinct checks.

2. The value and composition of the ore is definitely determined, and it can then be marketed to the best advantage.

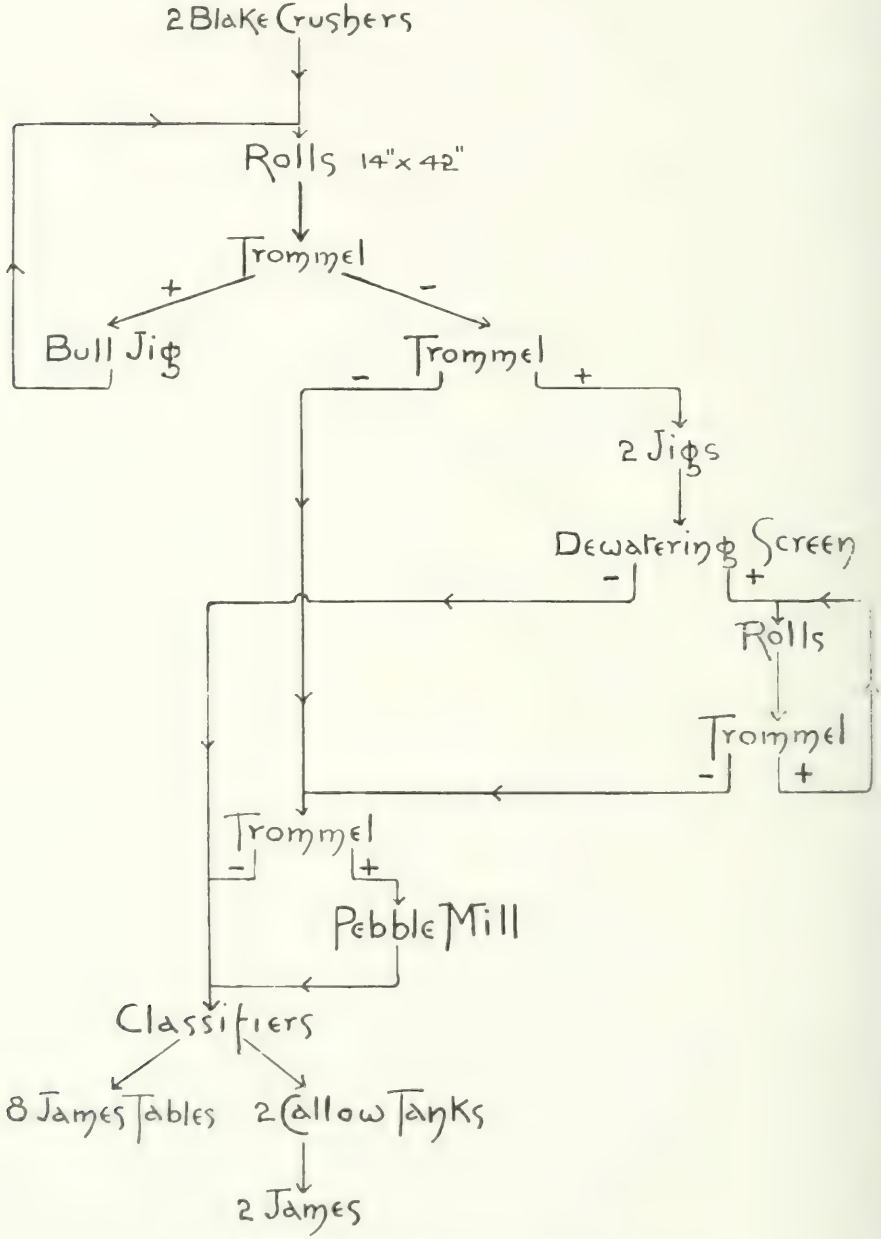
3. When so desired, lots of different values can be combined to give a desired product of a certain value.

4. Acceptance of local sampling as a basis of settlement by the smelters provides a market at the point of production and eliminates the expense of representation. Even lacking the acceptance of sampling by smelters, an excellent check is afforded on subsequent sampling at the smelters.

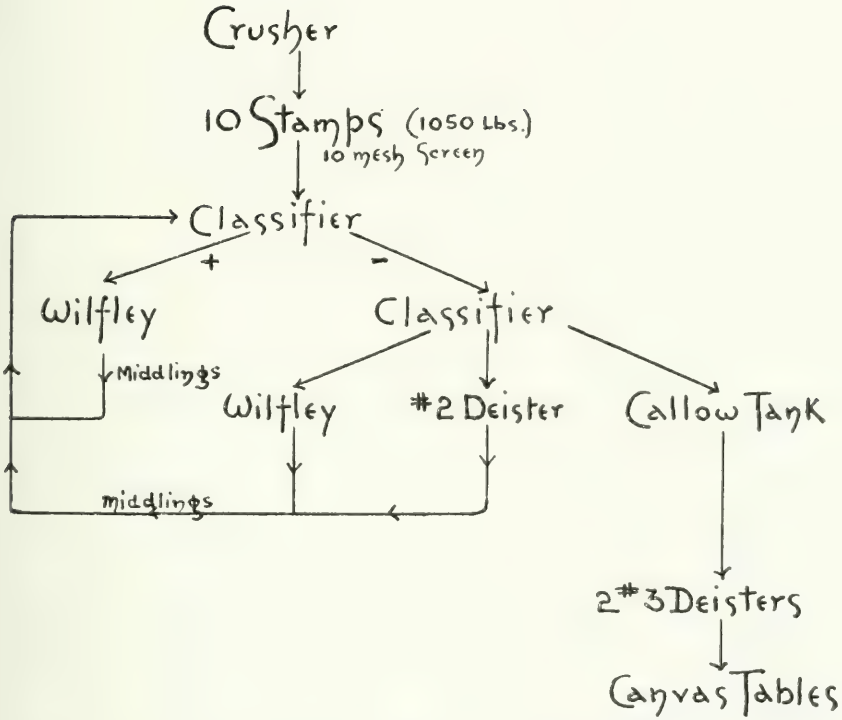
5. Certificate of valuation can be cashed at the local banks.



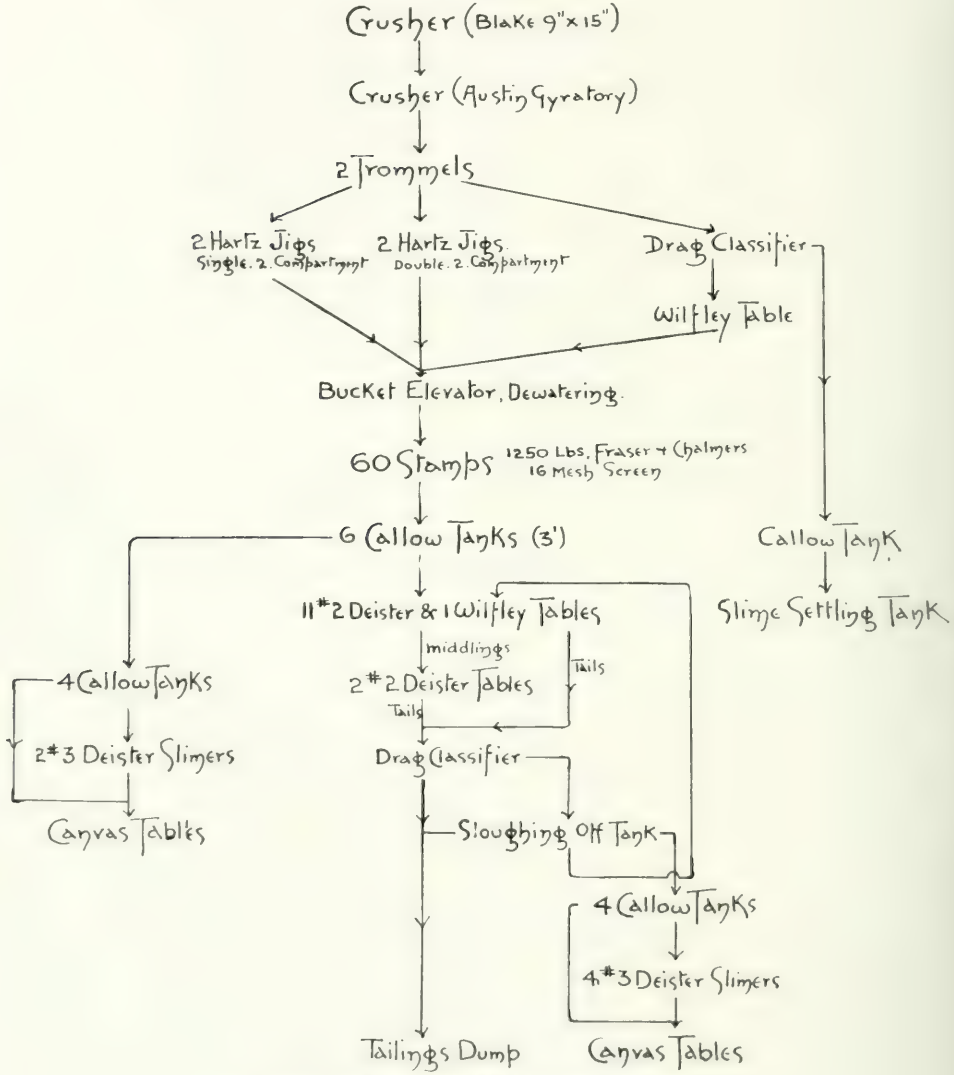
1. FLOW SHEET, BUFFALO CONCENTRATOR.



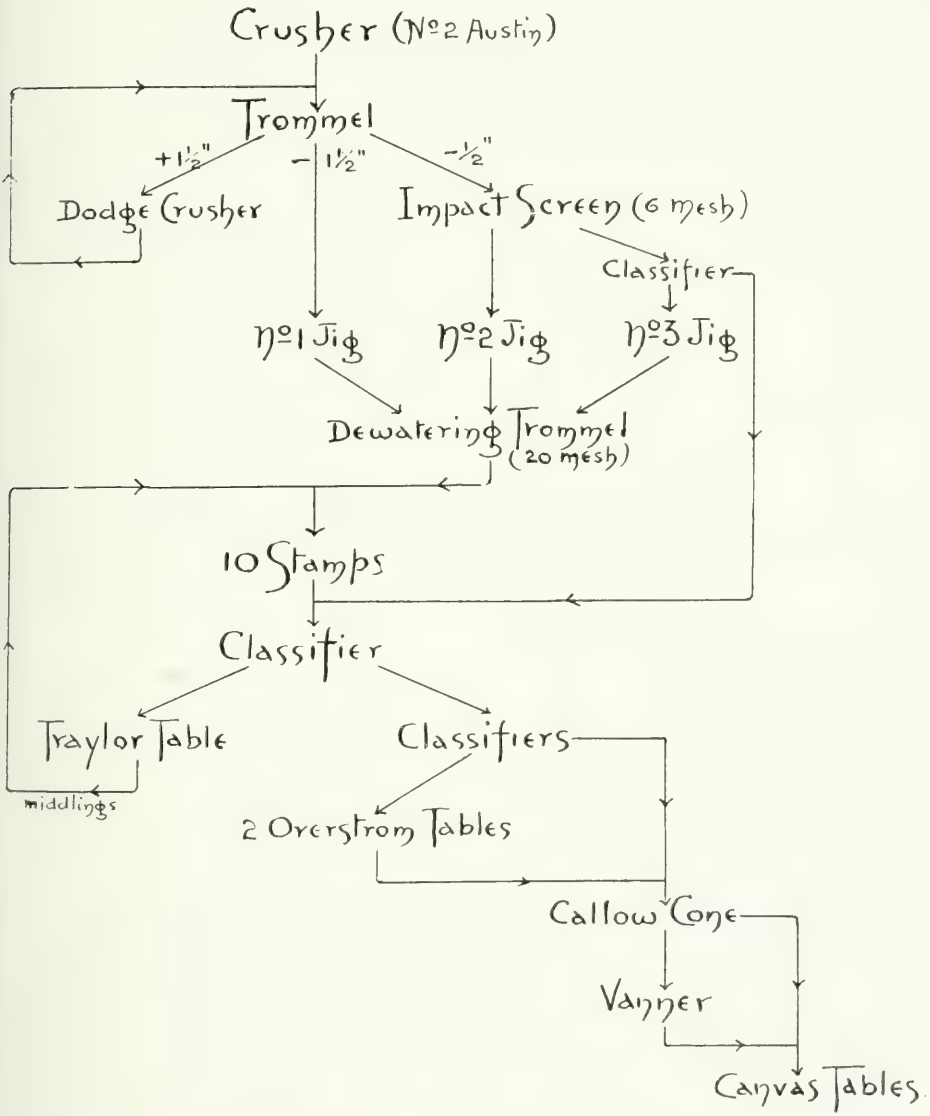
2. FLOW SHEET, COBALT CENTRAL CONCENTRATOR.



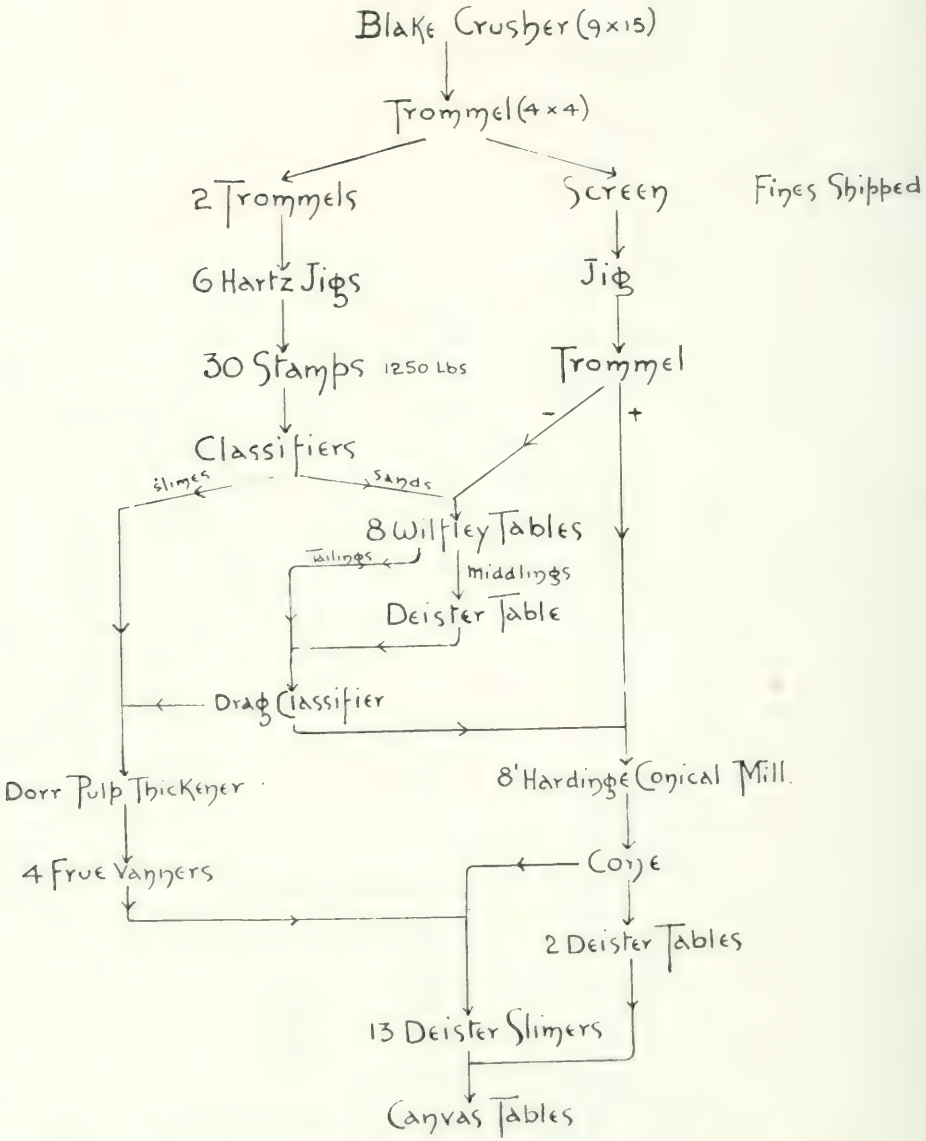
3. FLOW SHEET, COLONIAL CONCENTRATOR.



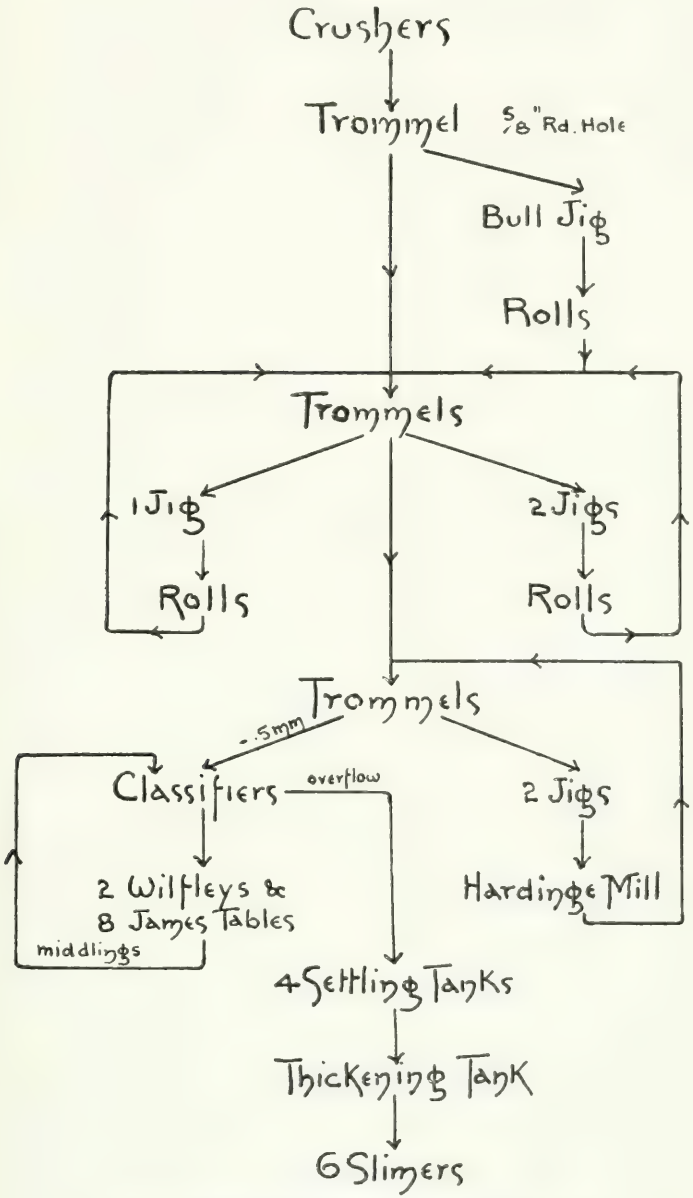
4. FLOW SHEET, CONIAGAS CONCENTRATOR.



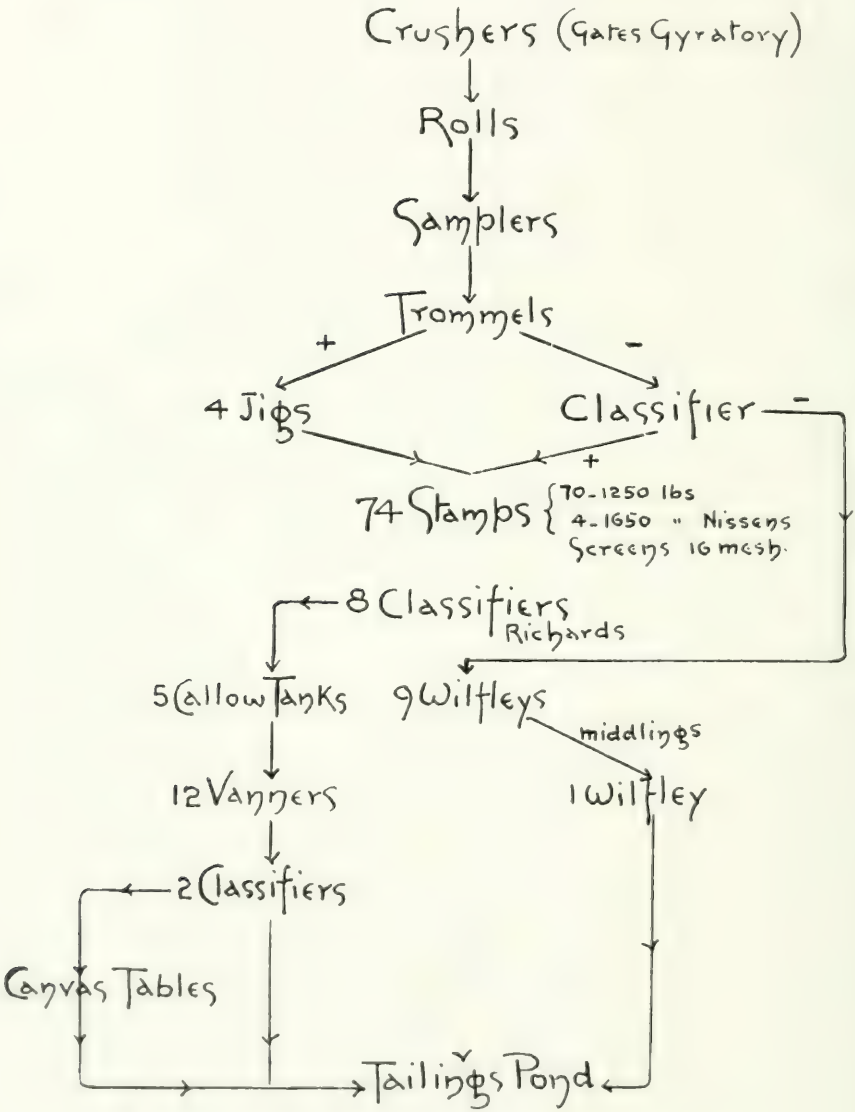
5. FLOW SHEET, KING EDWARD CONCENTRATOR.



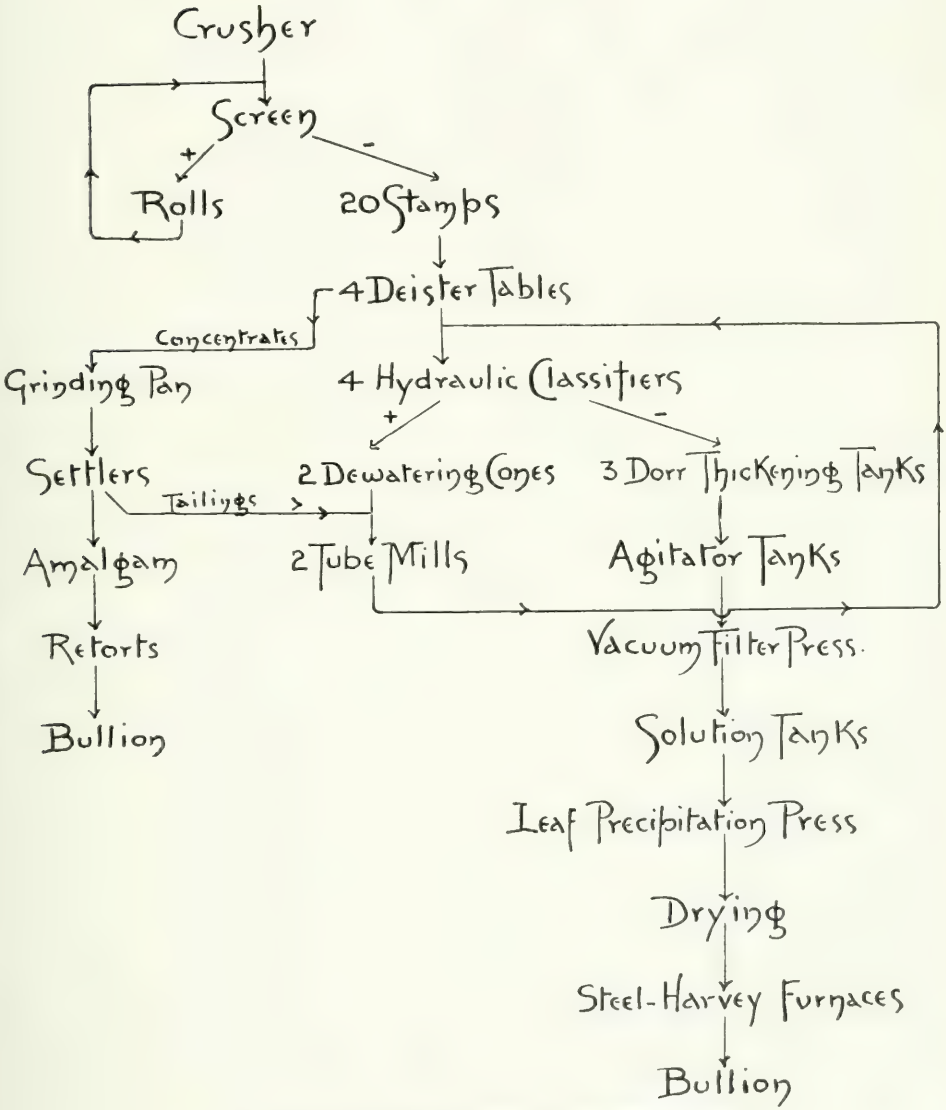
6. FLOW SHEET, M'KINLEY-DARRAGH CONCENTRATOR.



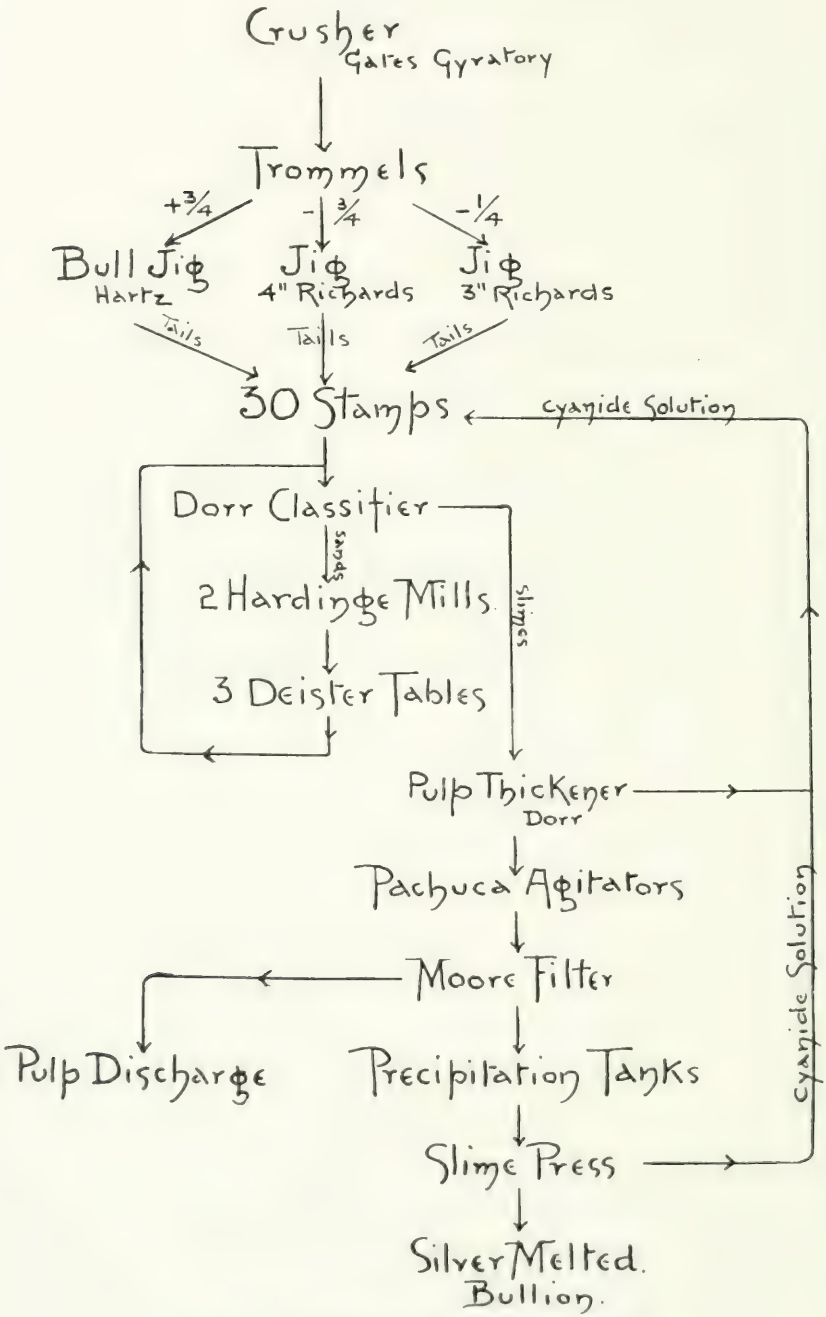
7. FLOW SHEET, NIPISSING REDUCTION MILL.



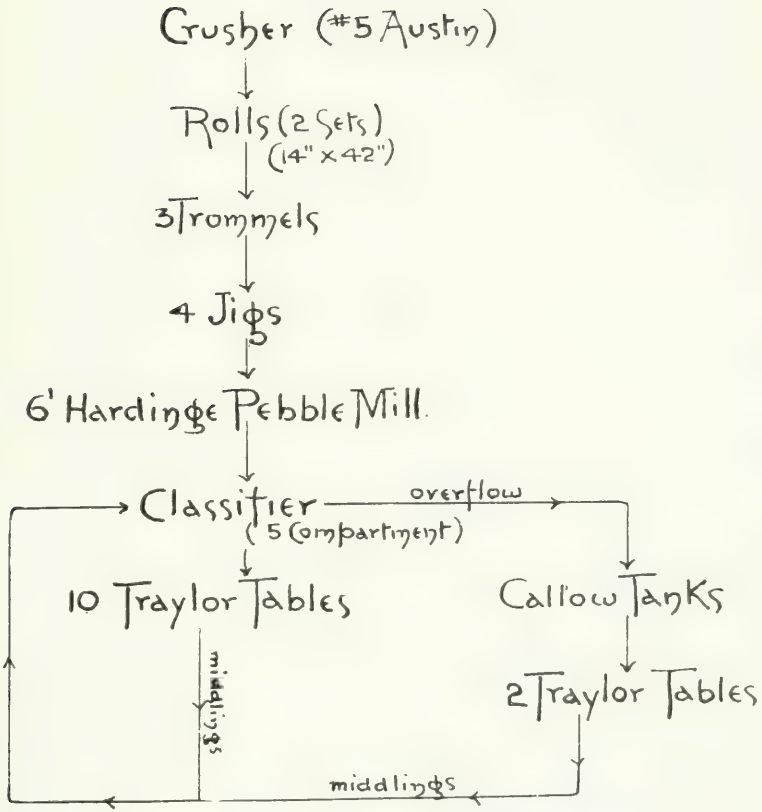
8. FLOW SHEET, NORTHERN CUSTOMS CONCENTRATOR.



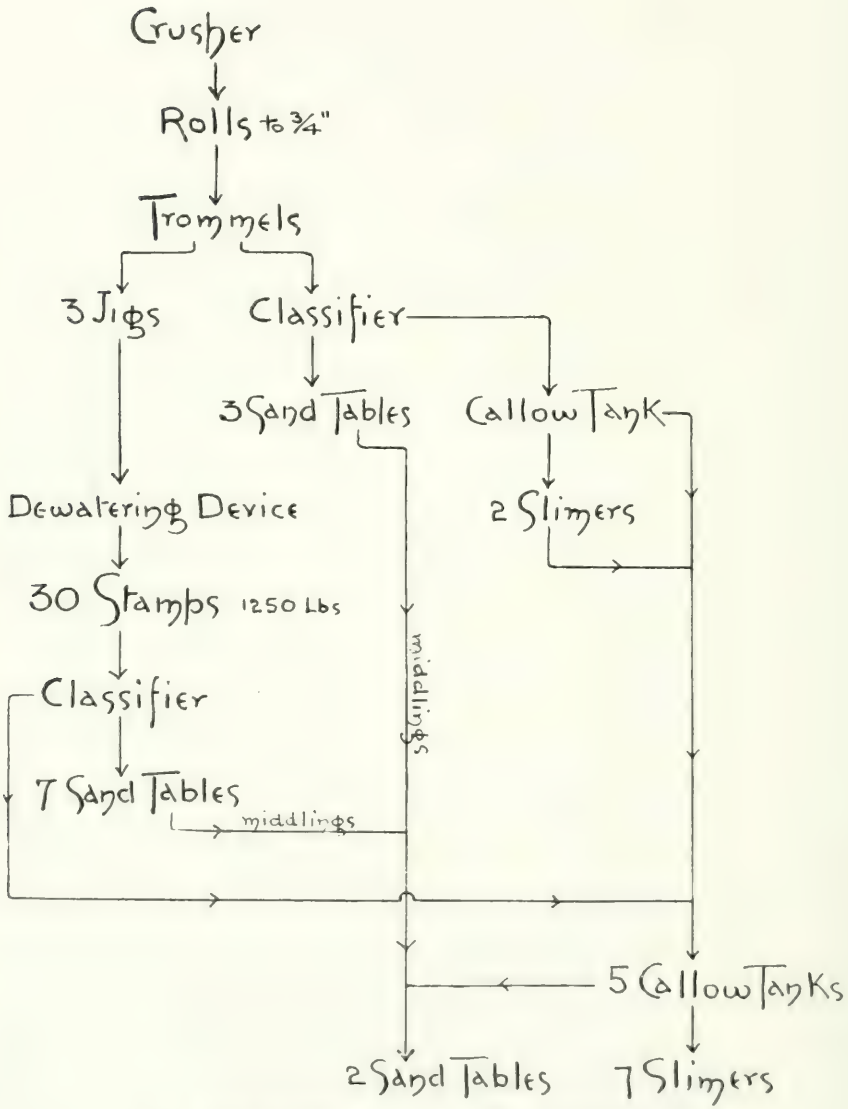
9. FLOW SHEET, NOVA SCOTIA CONCENTRATOR.



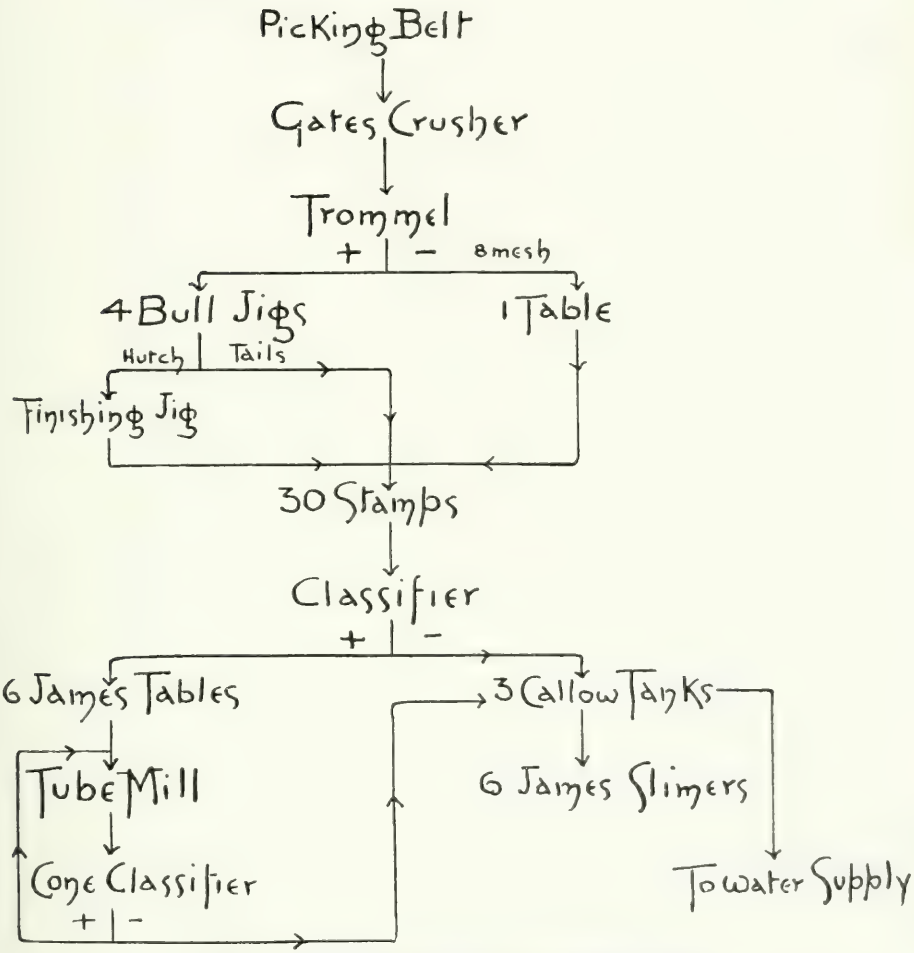
10. FLOW SHEET, O'BRIEN CONCENTRATOR.



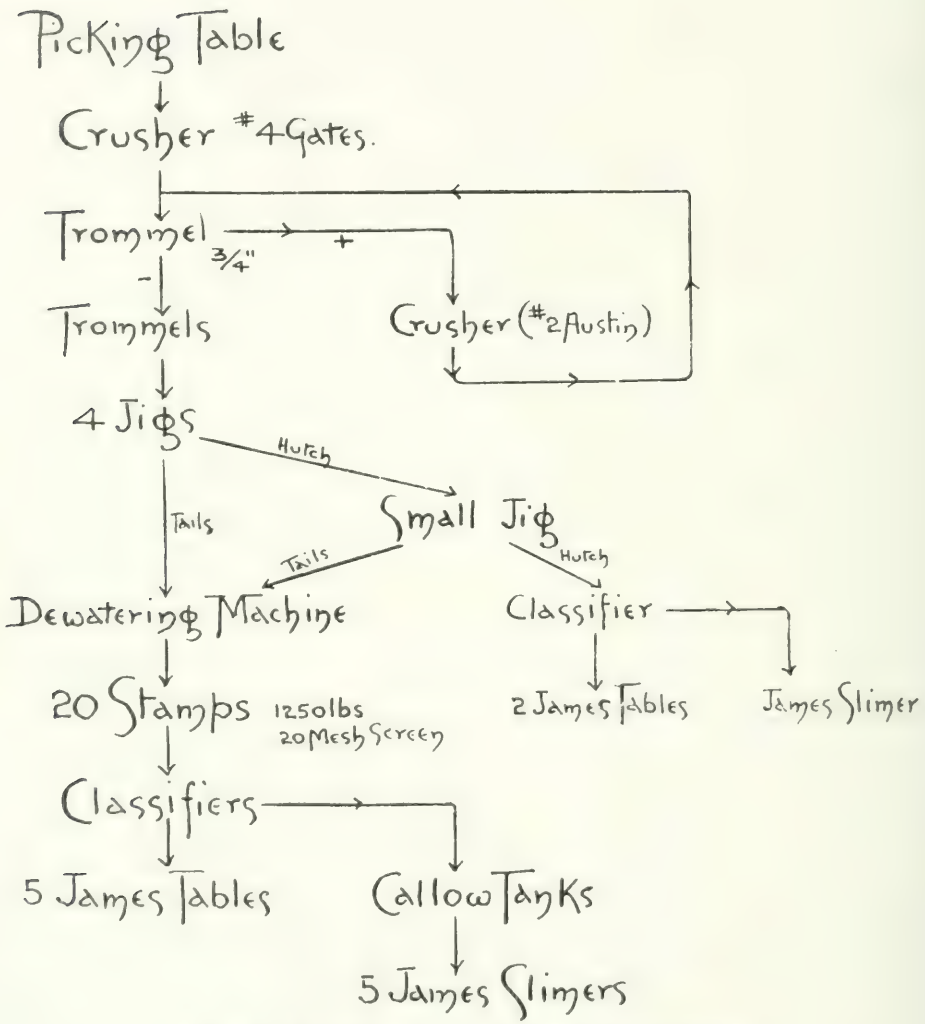
11. FLOW SHEET, SILVER CLIFF CONCENTRATOR.



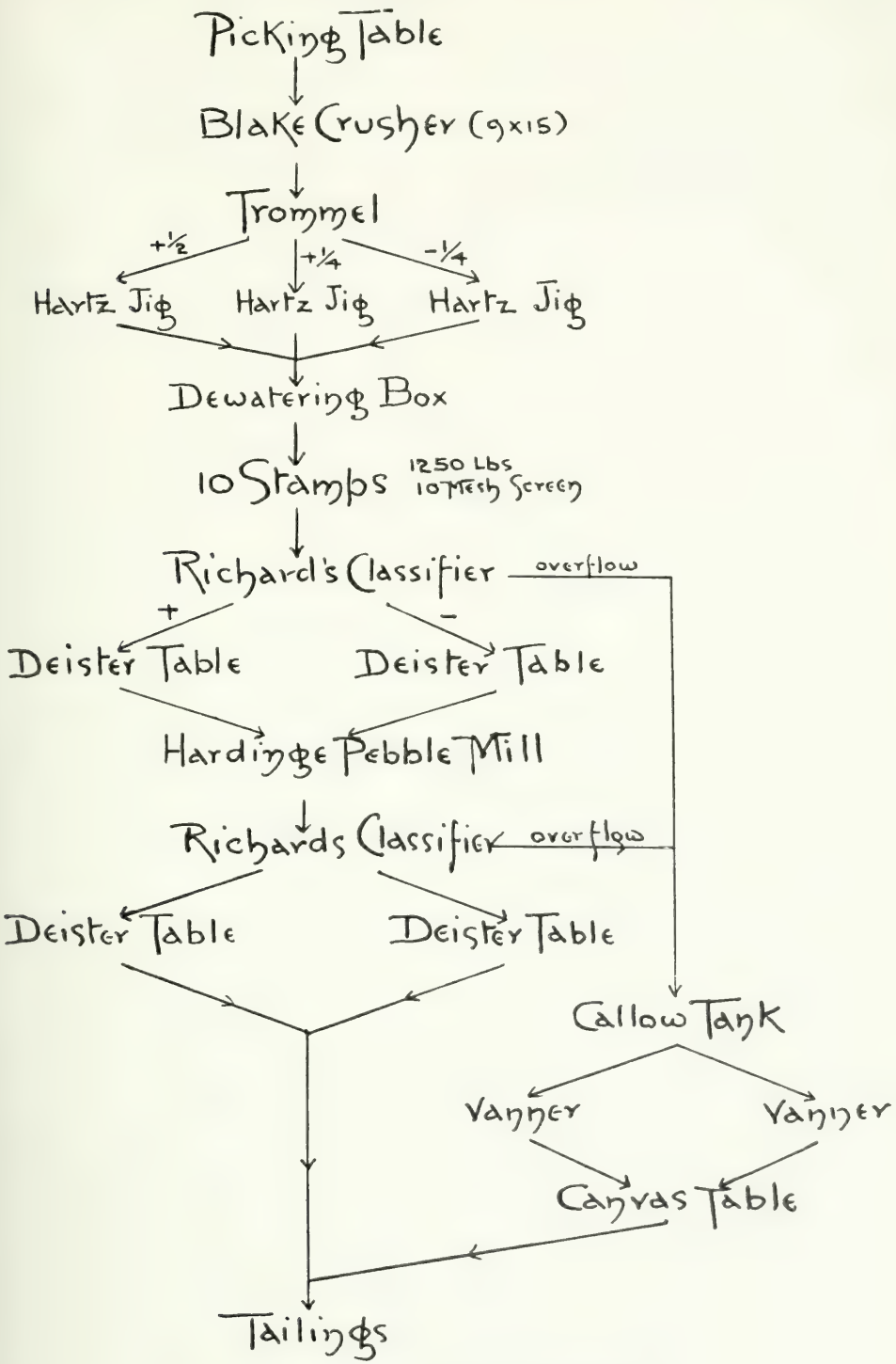
12. FLOW SHEET, TEMISKAMING CONCENTRATOR.



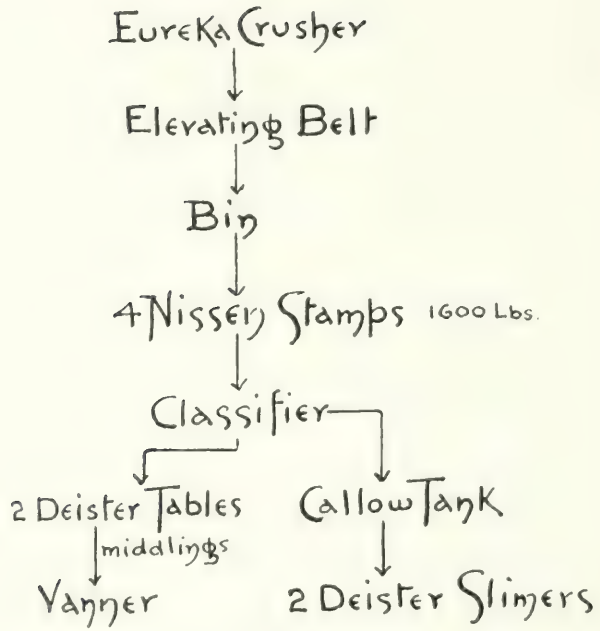
13. FLOW SHEET, TRETHEWEY CONCENTRATOR.



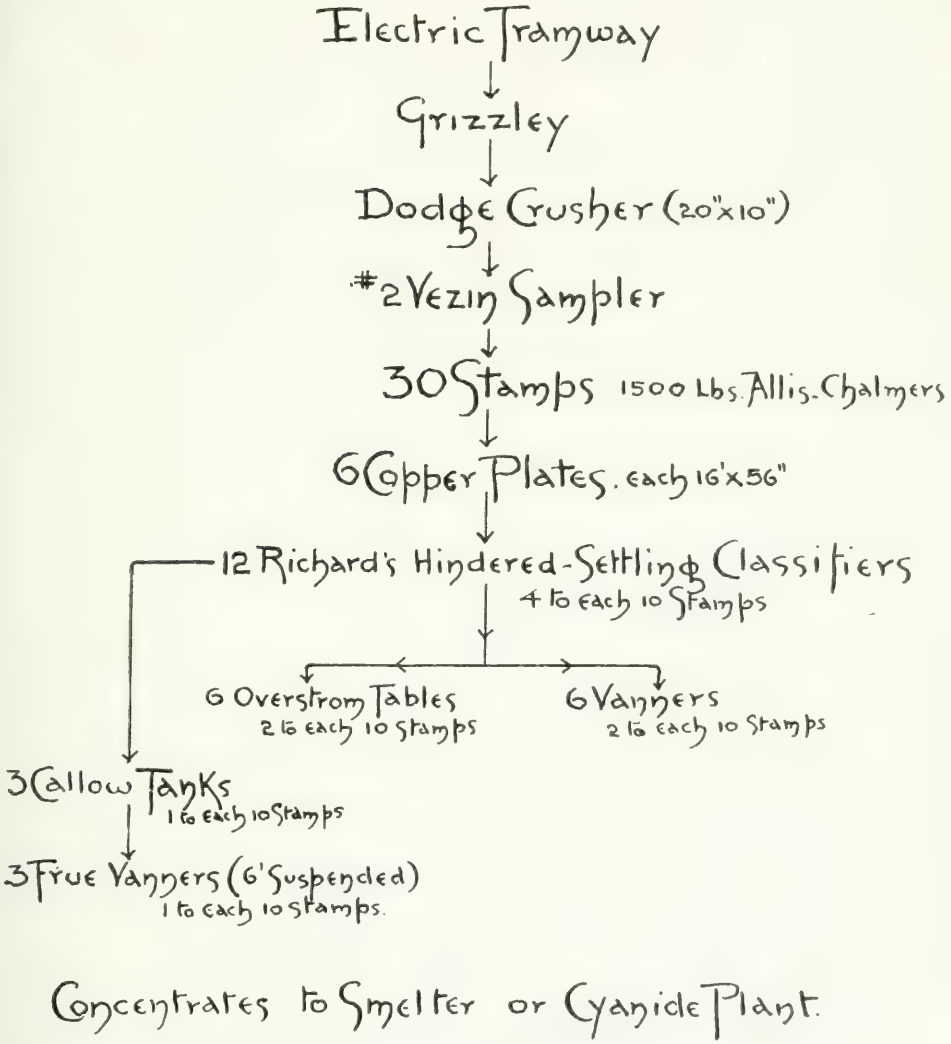
H. FLOW SHEET, HUDSON BAY CONCENTRATOR.



FLOW SHEET, MILLERETT CONCENTRATOR.



FLOW SHEET, REEVES DOBIE CONCENTRATOR.
(Capacity, 20 tons.)



FLOW SHEET, HOLLINGER MINING COMPANY'S MILL.

The results obtained during the six months in which the sampler has been in operation have been excellent, and have demonstrated the feasibility of correct automatic sampling as applied to even the high and irregular values existing in the Cobalt ores.

The tonnage handled during the first six months of operations was:

Green ore milled and sampled	2,573.75 tons.
Milled ore graded	833.11 "
Total handled	3,406.86

The approximate charges for sampling are $7.00 per ton green ore and $5.00 per ton concentrates, but these prices vary according to circumstances.

The accompanying flow-sheet shows the complete sampling operations.

Freight Rates on Silver Ore.

The freight rates on silver ore from Cobalt to the smelters in effect on the 1st day of January, 1911, were as follows:

From Cobalt to North Bay—
Below $49.00 per ton ..... 10 cents per 100 lbs.
Above $49.00 per ton, billed to Canadian points ..... 14 " " "
Above $49.00 per ton, billed to outside points ..... 16 " " "

Silver Ore, Carloads, Minimum 30,000 pounds.

From North Bay to	A	B	C	D
	Rates in cents per 100 lbs.			
Marmora, Ontario.	18	20	27	34
Copper Cliff, "	10	12	16	21
Orillia, "	11	13	17	21
Thorold, "	14	16	21	26
Toronto, "	12	14	19	24
*Denver, Colo., U.S.A.	40	46	54	62½
*Omaha, Neb., "	30	36	44	52½

Application of Rates.

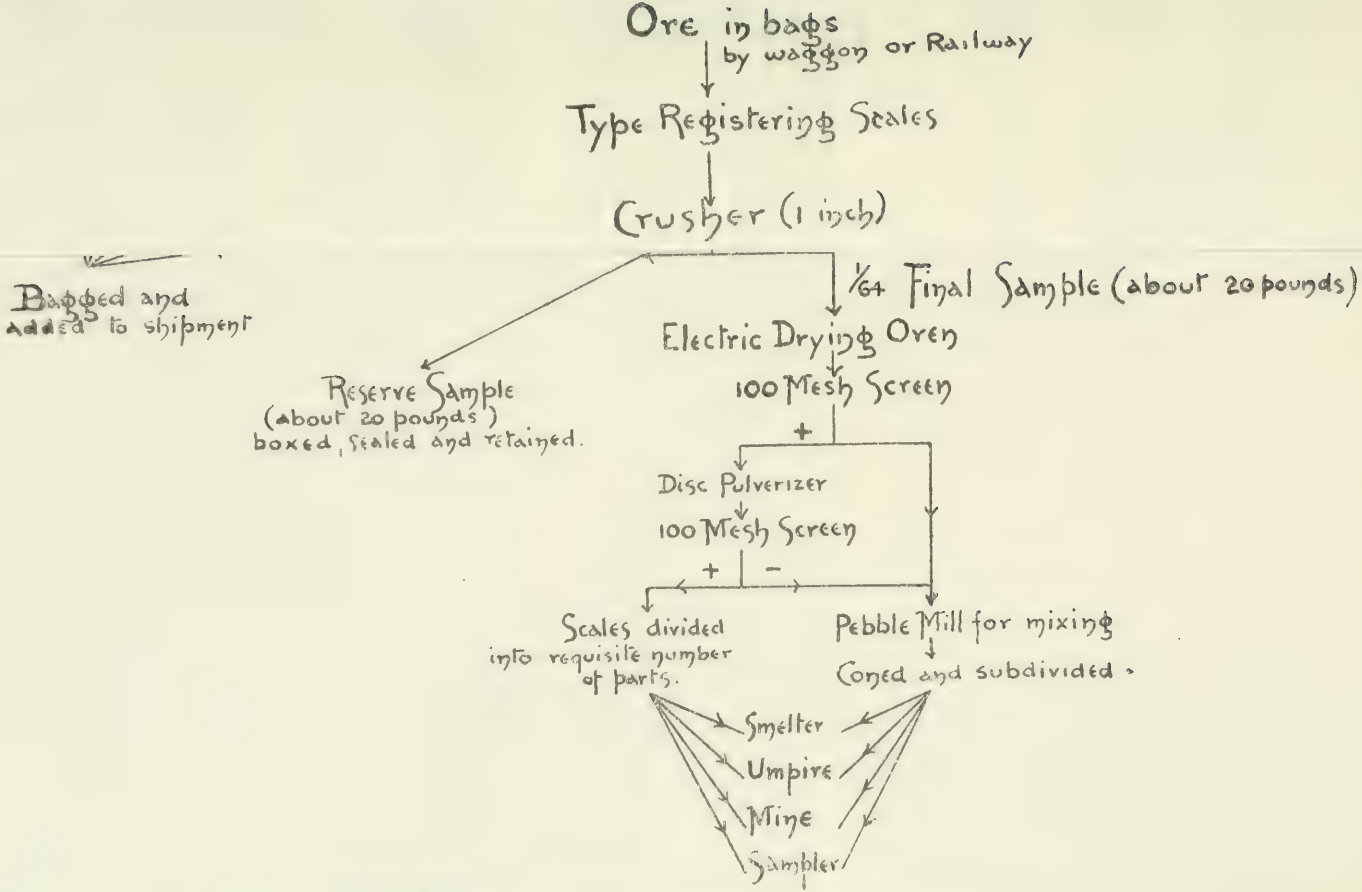
Group A.—rates apply when valuation is under $50.00 per net ton.
" B— " " " " " $50.00 and under $100.00 per net ton.
" C— " " " " " $100.00 and under $500.00 per net ton.
" D— " " " " " $500.00 and over per net ton.

When shipments are made to Eastern United States points a through rate is not quoted, but cars are billed to the frontier, to Buffalo, Black Rock or Suspension Bridge, N.Y. From there new rates and ratings apply.

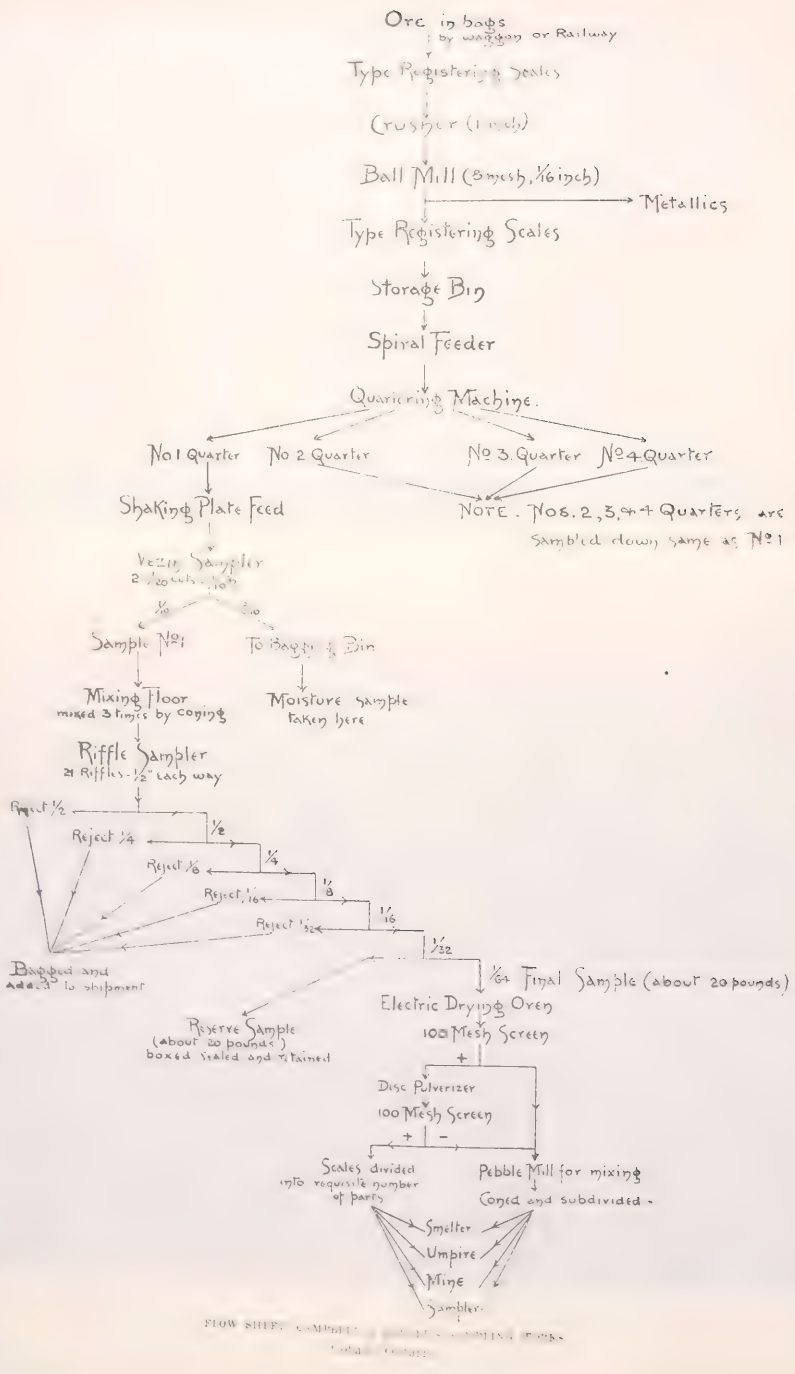
Silver Ore, Carloads, Minimum 40,000 Pounds.

From North Bay to	A	B	C	D
	Rates in cents per 100 pounds.			
Buffalo, Black Rock and Suspension Bridge, N.Y.	12½	15	19½	24½

*The splitting point for values in the application of rates in the cases of Denver and Omaha is one dollar below that given above, and the minimum carload is 40,000 pounds.



FLOW SHEET, CAMPBELL & DEYELL'S SAMPLING WORKS.
Cobalt, Ontario.


Ore in bags
by wagon or Railway
Type Registering Scales
Crusher (1 inch)
Ball Mill (8 mesh, 1/16 inch)
Metallics
Type Registering Scales
Storage Bin
Spiral Feeder
Quartering Machine.
No 1 Quarter
No 2 Quarter
No 3 Quarter
No 4 Quarter
Shaking Plate Feed
NOTE. Nos. 2, 3, & 4 Quarters are Sampled down same as No 1
Vezin Sampler
2 1/20 cuts - 1/10th
1/10
9/10
Sample No 1
To Bags & Bin
Mixing Floor
mixed 3 times by coning
Moisture sample taken here
Riffle Sampler
21 Riffles - 1/2" each way
Reject 1/2
1/2
Reject 1/4
1/4
Reject 1/8
1/8
Reject 1/16
1/16
Reject 1/32
1/32
Bagged and added to shipment
1/64 Final Sample (about 20 pounds)
Electric Drying Oven
100 Mesh Screen
+
Reserve Sample
(about 20 pounds)
boxed sealed and retained
Disc Pulverizer
100 Mesh Screen
+
−
Scales divided
into requisite number
of parts
Pebble Mill for mixing
Coned and subdivided
Smelter
Umpire
Mine
Sampler

FLOW SHEET

Application of Rates.

Group divisions A, B, C and D apply on same valuation as in previous table.

Silver Ore, Carloads, Minimum 50,000 Pounds.

	A	B	C	D
From Buffalo, Black Rock and Suspension Bridge, N.Y., N.Y., to	Rates in cents per 100 pounds.			
Bergen Junction, N.Y.	13	16	22	28
Carnegie, Pa.	10	11½	18	25½
Chrome, N.J.	13	16	22	28
Newark, N.J.	13	16	22	28
New York, N.Y.	13	16	22	28
Perth Amboy, N.J.	13	16	22	28
Norfolk, Va., U.S.A.	19	24	32	42

Application of Rates.

Group A—rates apply when valuation is under $100.00 per net ton.
" B— " " " " " over $100.00 and does not exceed $800.00 per net ton.
" C— " " " " " " $800.00 and does not exceed $2,000.00 per net ton.
" D— " " " " " above $2,000.00 per net ton.

Notes.

Shipments are billed at the highest rates (Column D) and charges are collected at destination accordingly. On presentation of paid expense bill and signed assay certificate from the smelter, showing the value of the ore to be less than the rating of group D, charges are adjusted in accordance with the valuation to the above rates. The smelter returns to the mine or owner before deducting transportation charges are the values used in determining the freight charges.

The freight charges on ore shipped from Cobalt to Hamburg, Germany, were $13.47 per ton when shipped via Montreal during the summer. In winter the ore goes via Boston and the rate was then $15.20 per ton.

Smelting of Cobalt Ores.

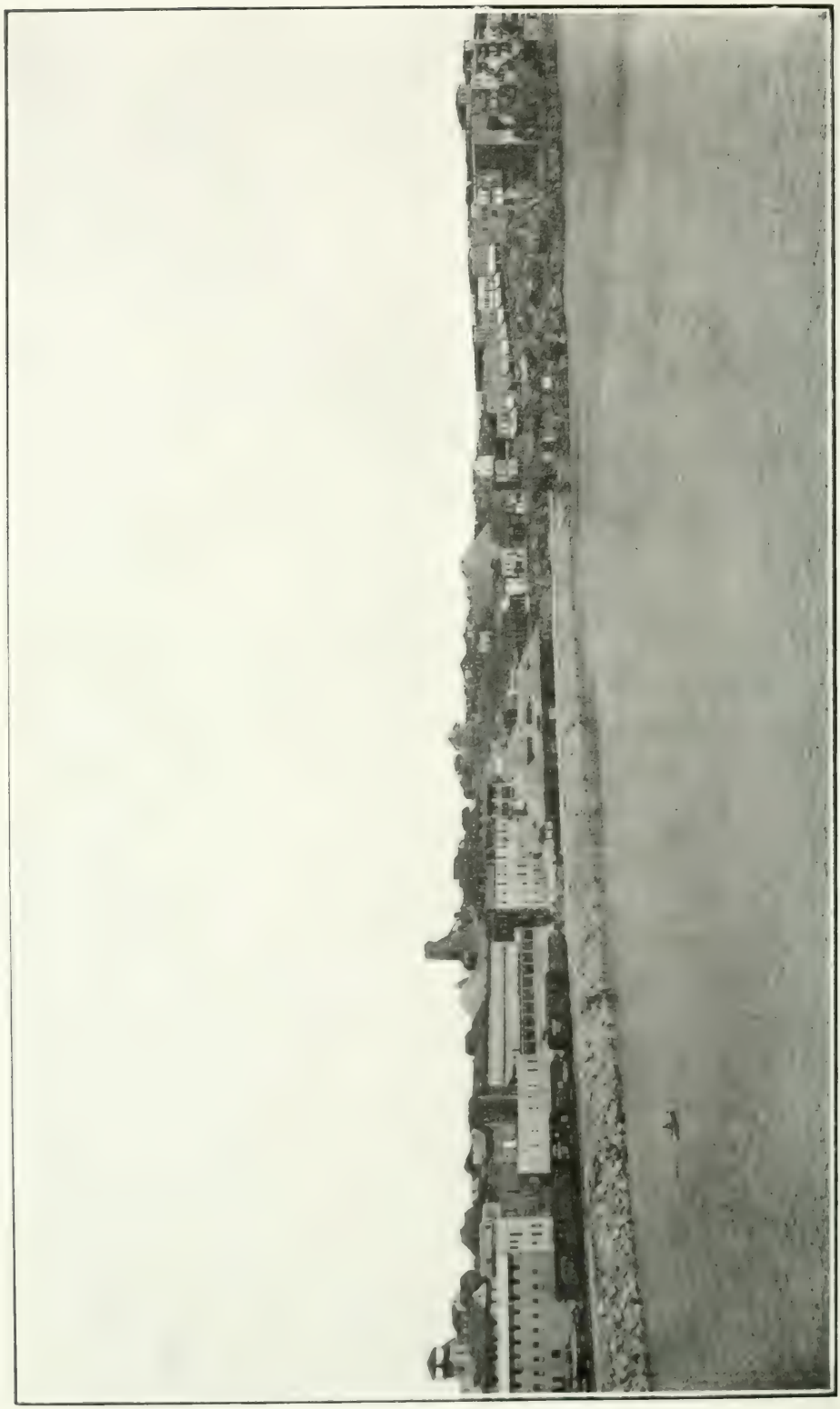
At the commencement of 1911 there were twelve smelting companies already receiving or bidding for Cobalt ores, six being Canadian, one British, four American and one German, with a New York agency.

The following is the list:

1. Canadian Copper Company, Copper Cliff, Ontario.
2. Coniagas Reduction Company, St. Catharines, Ontario.
3. Deloro Mining and Reduction Company, Deloro, Ontario.

New Companies.

4. Canada Refining and Smelting Company, Orillia, Ontario
5. Dominion Metals, Limited, Toronto, Ontario.
6. Swansea Smelting and Refining Company, Swansea, Ontario.
7. American Smelting and Refining Company, New York, N.Y., U.S.A.
8. Balbach Smelting and Refining Company, Newark, N.J., U.S.A.
9. Beer, Sondheimer & Company, Frankfort-on-Main, Germany, and New York, U.S.A.
10. Pennsylvania Smelting Company, Pittsburg, Pa., U.S.A.
11. Quirk, Barton & Company, London, England.
12. United States Metals Refining Company, New York, N.Y., U.S.A.



Cobalt from south side of Cobalt Lake.

The ore treated by the Canadian smelters is all high grade, but some high grade also goes to American points. The low grade is shipped mostly to Denver, Colo. The percentage of low grade ore leaving the Camp is falling year by year, owing to the increase in the number of the concentrators operating, and the percentage of concentrates shipped is consequently rapidly rising.

As in former years the tonnage treated in Canada was less than that shipped to the United States, but on account of the higher grade of the ore treated by the Canadian smelters the number of ounces treated was more than 50 per cent. of the total. Thus the amount treated by the three chief Canadian smelting companies during 1910 was approximately as follows:

Canadian Copper Company	8,700,000 ounces.
Coniagas Reduction Company	3,500,000 "
Deloro Mining and Reduction Co.	4,500,000 "
Total	16,700,000 "

Three new smelting companies, with works located in Ontario, are now entering the market for the purchase of ores from the Cobalt Camp.

The schedules offered at the end of 1910 are slightly better than at the beginning of the year as regards silver, and the returns from shipments are now more prompt. On the other hand, on account of the glutted state of the Cobalt market, no payments are now made for Cobalt, with the exception of those made on a small tonnage shipped by the Nipissing Company to Messrs, Quirk, Barton and Company of London, England.

No payments are made to the mining companies for the arsenic recovered from the ores, but the returns from the sale of this by-product make it possible for the smelters to offer better terms for the silver contents.

1. Canadian Copper Company, Copper Cliff, Ont.

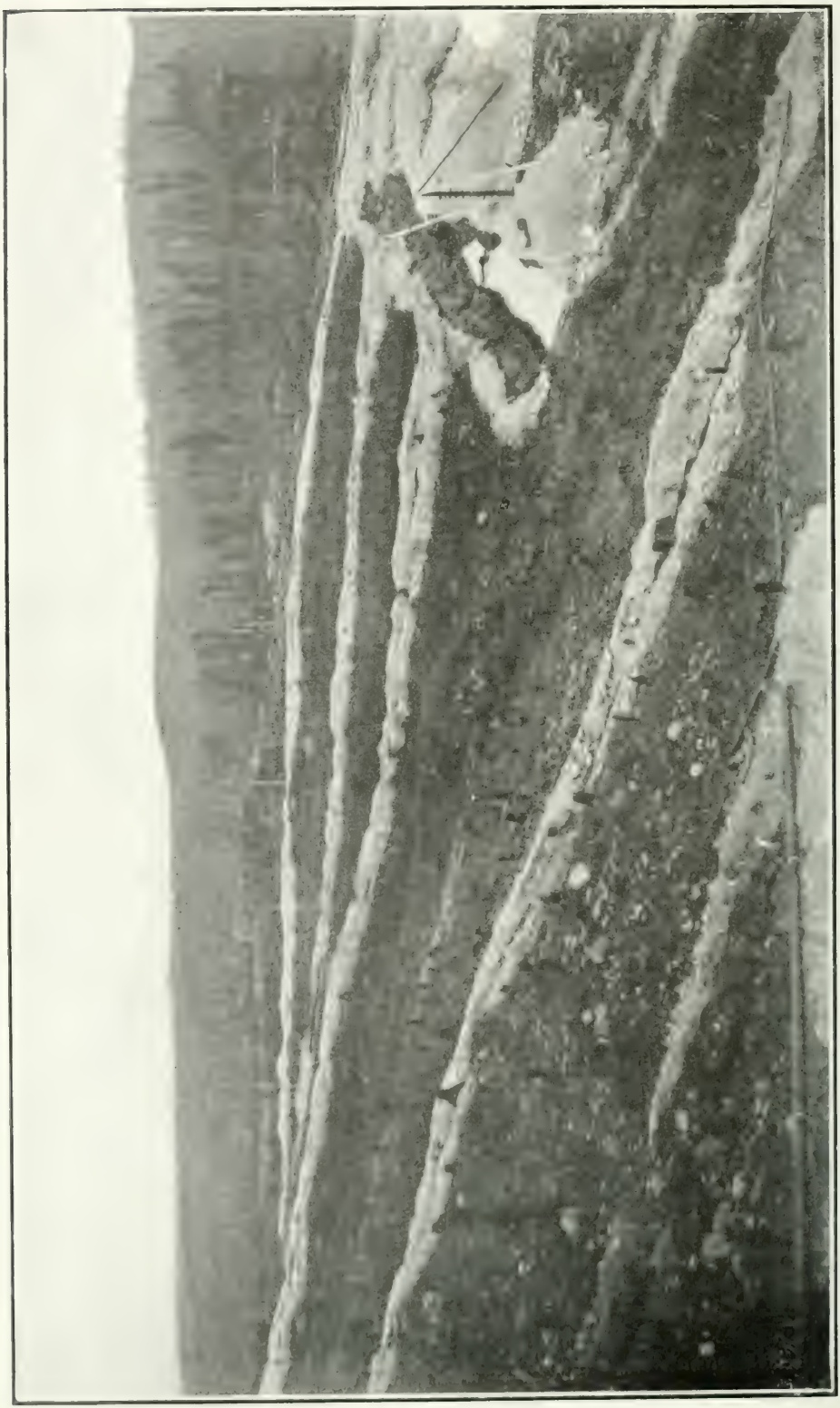
The Canadian Copper Company of Copper Cliff, Ontario, besides its large nickel-copper plant, has been operating a small plant for the treatment of Cobalt ores since 1905.

Recently changes have been made enabling the Company to ship both refined silver and refined arsenic, also crude cobalt in the usual form which manufacturers of cobalt purchase.

The treatment of the ore in outline is as follows: After careful weighing and sampling the ore is smelted, the products being speiss and base bullion. The bullion is then treated in furnaces until it is ready to ship as refined silver.

After the speiss has been milled and desilverized by wet method, a crude cobalt residue is obtained, which is given further treatment to get it into marketable form. The arsenic is recovered in arsenic chambers as a by-product from the smelting.

The recent changes have increased the capacity of the plant from 800 to 1,000 tons per month, giving a monthly output of silver of from 1,000,000 to 1,500,000 ounces. Another result of the enlargement and the changes that have been made is the quicker returns to shippers. Formerly the company paid for 70 per cent. of the silver in 35 days and 30 per cent. in 90 days from sampling date. Since the 1st of December, 1910, payments are made 70 per cent. in 30 days and 30 per cent. in 60 days.



Trenching on the Drummond property.

All ore purchases are made by the Orford Copper Company of New York, and the following is a curtailed schedule for arsenical-cobalt-silver ores, which went into effect December 1st, 1910.

SCHEDULE

Purchaser to make payment for—

84%	of silver	per	ton	of ore (2,000 lbs.)	when same assays	200 - 500 oz. silver.
85%	"	"	"	"	500 - 600	"
87%	"	"	"	"	600 - 800	"
90%	"	"	"	"	800-1,000	"
92%	"	"	"	"	1,000-1,300	"
93%	"	"	"	"	1,300-1,600	"
93½%	"	"	"	"	1,600-2,000	"
94½%	"	"	"	"	2,000-2,500	"
95%	"	"	"	"	2,500-3,000	"
95½%	"	"	"	"	3,000-4,000	"
96%	"	"	"	"	4,000-5,000	"
96½%	"	"	"	"	5,000 and over	"

Ore to be delivered to the Canadian Copper Company f.o.b. cars, Copper Cliff, Ontario, ore to be at shipper's risk until sampling is undertaken, as purchaser can assume no responsibility for the ore until same has been taken into its sampler.

Purchaser to sample at its expense, purchaser's and seller's representatives to be present. Assays to be made by Ledoux and Company, of New York, at seller's expense, which assays are to govern in settlement.

Payment for 70 per cent. of the silver returnable to the seller as per the above scale, to be made at the New York official price for the silver on the first settlement date, which shall be 30 days after the date on which sampling of the ore is completed, and the balance (30 per cent.) on the second settlement date, at the New York official price for silver on that date, which shall be 60 days after sampling of the ore is completed. The purchaser, however, reserves the right to deliver upon either or both of the settlement dates above specified, in lieu of cash, at its option, such silver bullion (commercial bar silver) as is due the seller in settlement upon these dates, such delivery to be made in New York City.

2. The Coniagas Reduction Company, Limited, St. Catharines, Ont.

The works of the Coniagas Reduction Company, Limited, are situated at Thorold, Ontario, with head office at St. Catharines, Ontario. The stock of the Company is owned by the Coniagas Mines, Limited, of Cobalt, Ontario.

The Plant covers aproximately four acres, and represents an investment of about $500,000. It employs an average of about 125 men, with a pay roll of about $100,000 per year, all for the smelting and refining of ores from the Coniagas Mines, of Cobalt, Ontario, with a comparatively small amount purchased from other producing properties in the Cobalt District.

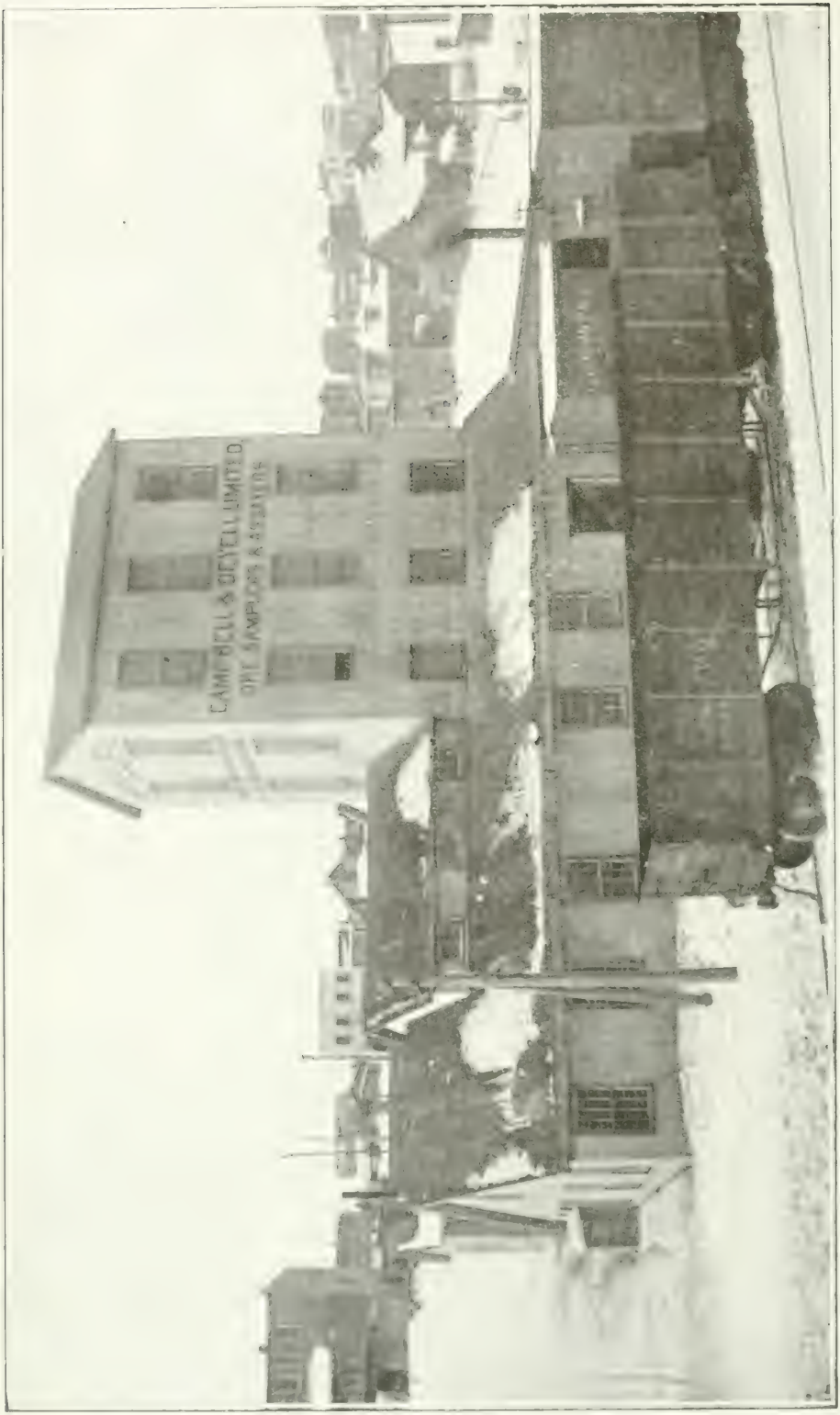
The output in silver during the Calendar year, 1910, is estimated at 3,500,000 ounces, and it is estimated that the plant will have a capacity of about 7,000,000 ounces for the ensuing year.

The silver is disposed of in the form of merchantable bars.

The arsenic is refined and marketed as white arsenic.

To date the cobalt and nickel contents have been manufactured into cobalt and nickel oxides, which have been disposed of in this form for export, to be finished in foreign countries.

The latest smelting tariff offered by this Company for Cobalt silver ores in 1910 was dated at St. Catharines, September 20th, and is as follows, a few details regarding sampling and assaying, however, being omitted.



Campbell & Bevell's Sampling Works—Cobalt.

Schedule.

Percentage of silver to be paid for:

75%	of silver contents by commercial assay over				100	oz.	and up to	200	oz. per ton,	2,000 lbs.
84%	"	"	"	"	200	"	and over		"	"
86%	"	"	"	"	300	"	"		"	"
89%	"	"	"	"	500	"	"		"	"
91%	"	"	"	"	750	"	"		"	"
93%	"	"	"	"	1,000	"	"		"	"
93½%	"	"	"	"	1,500	"	"		"	"
94½%	"	"	"	"	2,000	"	"		"	"
95%	"	"	"	"	2,500	"	"		"	"

Ores containing less than 3,000 ounces per ton are subject to a refining charge of half cent. per ounce, and ores containing less than 1,500 ounces per ton are subject to a refining charge of three quarters of one cent per once. Ores containing less than 1,000 ounces per ton are subject to a treatment charge of $10.00 per ton in addition to above.

Terms of Payment for Silver.

Seventy-five per cent. of amount 30 days after date of weighing and sampling report.

Twenty-five per cent. of amount 90 days after date of said report.

Price of silver to be determined by New York quotation, as given by Messrs. Handy and Harman to Western Union Telegraph Co. on dates of settlement.

All ores to be delivered f.o.b. Thorold smelter, via G. T. R., in car load lots and to be at shipper's risk and expense until sampling is undertaken.

3. Deloro Mining and Reduction Co., Limited, Deloro, Ont.

The plant and property of the Deloro Mining and Reduction Company, Limited, is situated at Deloro, Ontario.

The Deloro Smelter has a daily capacity for treating twelve to fourteen tons of high grade Cobalt ore.

These works produce two grades of silver bullion, which is shipped in the usual ingot shape, weighing 1,200 ounces each.

The fine bullion is 999.5 to 1,000 fine silver.

The base bullion is 850 to 900 fine silver.

Deloro Smelter has produced over 10,000,000 ounces fine silver, of this amount 4,500,000 ounces are to be credited to the year 1910.

In connection with the smelting plant is a large arsenic refinery, during the year 1909 a separate and very extensive plant was added for the manufacture of cobalt oxide, and this has been in successful operation since May last.

Deloro Mining and Reduction Company, Limited, is a purely Canadian concern, close corporation, practically owned by M. J. O'Brien, owner of the O'Brien Mine.

The tariff issued by the Company, dated September 27th, 1910, was effective at the end of the year and is given below in slightly condensed form.

Tariff on Silver Cobalt Ore and Concentrates.

Pay for 98 per cent. of the silver contents of the ore as determined by commercial assay, on the following terms and conditions:

Treatment Charge.—$25.00 per ton of ore.

Refining Charge.—Three-quarters of a cent. per ounce of silver contents on ore assaying 3,000 ounces and over per ton. One cent. per ounce of silver contents on ore assaying 2,000 to 3,000 ounces per ton. One and a half cents per ounce of silver contents on ore assaying less than 2,000 ounces per ton.

Terms of Payment.—75 per cent. of net proceeds at Handy & Harman's New York quotation, 30 days after completion of sampling, 25 per cent. of net proceeds at Handy & Harman's New Work quotation 90 days after completion of sampling.

Ore to be delivered in carload lots f.o.b. Marmora station, C. O. Railway, and to be at shipper's risk until sampling is undertaken.

Weights and moisture as determined after sampling at purchaser's works to govern.

Assays governing settlement to be made by Ledoux & Co., or by the Constant Heizig Company at seller's expense, with the usual provision as to umpire assay of unusual differences.

4. Canada Refining and Smelting Company, Orillia, Ontario.

This new Smelting Company hopes to have its plant in operation early in 1911, and is now offering the following schedule for purchase of Cobalt silver ore and concentrates:

84% of silver contents by commercial assay				200 oz.	and	over	per	ton, 2,000 lbs.
86%	"	"	"	300	"	"	"	"
89%	"	"	"	500	"	"	"	"
91%	"	"	"	750	"	"	"	"
93%	"	"	"	1,000	"	"	"	"
93½%	"	"	"	1,500	"	"	"	"
94½%	"	"	"	2,000	"	"	"	"
95%	"	"	"	2,500	"	"	"	"

Ores containing less than 3,000 ounces per ton are subject to a refining charge of ½ cent per ounce, and ores containing less than 1,500 ounces per ton are subject to a refining charge of ¾ cent per ounce. Ores containing less than 1,000 ounces per ton are subject to a treatment charge of $10.00 per ton in addition to above.

Terms of payment for Silver.

75 per cent. of amount 30 days after date of weighing and sampling report.

25 per cent. of amount 90 days after date of said report.

Price of silver to be New York official quotation.

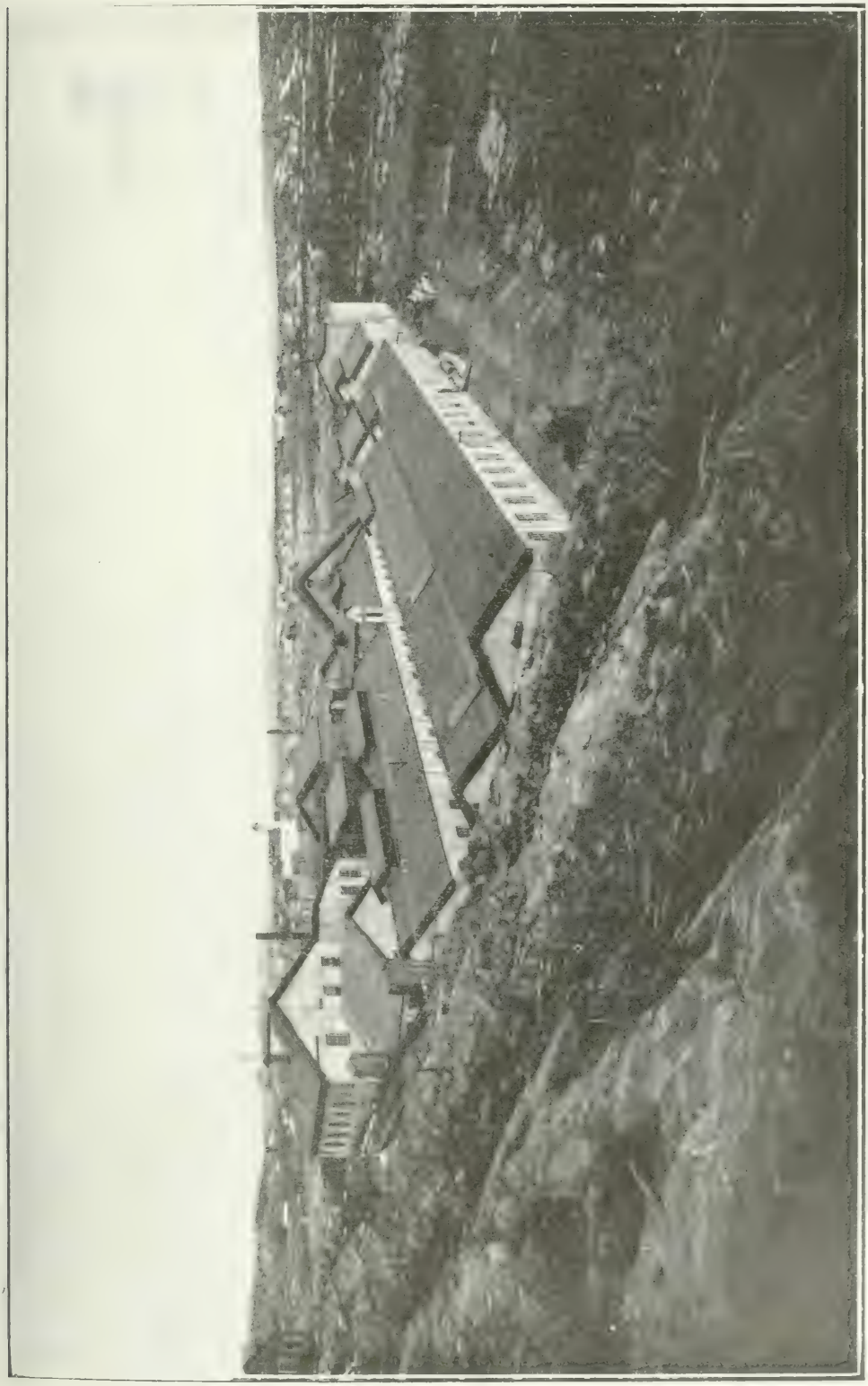
Ore to be delivered f.o.b. Orillia, car load lots at owner's risk.

Weights to be taken after milling and moisture determination.

When so desired, Campbell and Deyell's sampling and weights will be accepted as final, and in case of dispute on assays settlement will be made on assays of Campbell and Deyell as umpire, or such other umpire which may be mutually agreed upon by both parties.

5. Dominion Metals, Limited, Toronto.

The Dominion Metals, Limited, did not enter the market for the purchase of silver ore until the beginning of 1911. A schedule dated 9th January, 1911, allowed a small payment for cobalt contents, and is as follows:



Cobalt plant, Canadian Copper Co. Copper Cliff.

Schedule.

Pay on 95 per cent. of the silver, and ½ cent per unit for cobalt over 6 per cent. Payment will be deferred in ratio to percentage of arsenic contained in the ore as outlined hereunder. Cobalt settlement made on date of final silver settlement.

On ore containing from 2,000 to 3,000 ounces of silver per ton and carrying up to 10 per cent. arsenic—

10 day sampling after delivery.
70 per cent. of silver 30 days after sampling.
30 per cent. of silver 60 days after sampling.

Over 10 per cent. and up to 20 per cent. arsenic—

10 day sampling after delivery.
60 per cent. silver 30 days after sampling.
30 per cent. silver 60 days after sampling.
10 per cent. silver 90 days after sampling.

Over 20 per cent. arsenic—

10 days for sampling.
50 per cent. silver 30 days after sampling.
25 per cent. silver 60 days after sampling.
25 per cent. silver 90 days after sampling.

No penalty for arsenic or nickel. Smelter charges $8.00 per ton. Company to have option of settling by bullion or cash at New York prices, on day of settlement.

6. Swansea Smelting and Refining Co., Swansea, Ontario.

A small amount of ore was shipped to this Company during 1910 and it expects to be in a position to accept regular shipments during the current year.

7. American Smelting and Refining Co., New York, U.S.A.

This Company receives most of the lower grade shipped from Cobalt, using it for fluxing purposes in its smelters in Denver and Omaha. The high grade ore it purchased was treated at Perth Amboy, N.J.

Tariff.

For ores assaying 1,000 ounces or over per ton.

Silver.—Pay for 95 per cent. of the silver contents at New York quotation.

Treatment Charge.—$8.00 per ton of 2,000 pounds, dry weight, plus ½ cent on each ounce of silver contained.

Arsenic.—An addition to the working charge will be made at the rate of 25 cents per dry ton for each per cent. of arsenic in excess of five per cent. Sampling free.

Payment.—Thirty days after agreement of assays.

For ores under 1,000 ounces and over 60 ounces per ton.

Silver.—Payment for 95 per cent. of the silver contents at the New York quotation.

Treatment Charge.—$8.00 per ton of 2,000 pounds, dry weight.

Arsenic.—An addition to the working charge will be made at the rate of 25 cents per dry ton for each per cent. of arsenic in excess of 5 per cent.

Payment.—Cash settlement on agreement of assays.

8. Balbach Smelting and Refining Co., Newark, U.S.A.

The Nipissing Mining Company made a trial shipment of a few cars of ore to the Balbach Smelting and Refining Co. in 1910. The Smelting Co. has no outstanding schedule for the purchase of cobalt ores, but is ready to purchase them when offered, providing they are low in arsenic.

9. Beer, Sondheimer & Co., Frankfort-on-Main, Germany, and New York, U.S.A.

High grade silver ore is bought for this Company by its New York agency, as follows:

Pay for 95 per cent. of the silver contents.

No smelting nor refining charge.

Ore to be delivered at Europe.

The ore is received at different European points, one of them at Antwerp.

10. Pennsylvania Smelting Co., Pittsburg, Pa.—Works at Carnegie, Pa.

The following is the schedule of purchase of silver cobalt ores offered by the Pennsylvania Smelting Co. in effect November 19th, 1910.

Schedule.

For ores containing less than 200 ounces of silver to the ton we pay the New York silver price, less ¾ cent per ounce for 95 per cent. of the silver contents, less treatment charge of $8.00 per ton.

For silver containing 200 to 400 ounces silver per ton, we will pay the New York silver price, less ½ cent. per ounce for 95 per cent. of silver contents, less treatment charge of $8.00 per ton.

For ore containing 400 to 2,000 ounces silver to the ton, we will pay the New York silver price, less ¼ cent per ounce for 95 per cent. of the silver contents, less a treatment charge of $8.00 per ton.

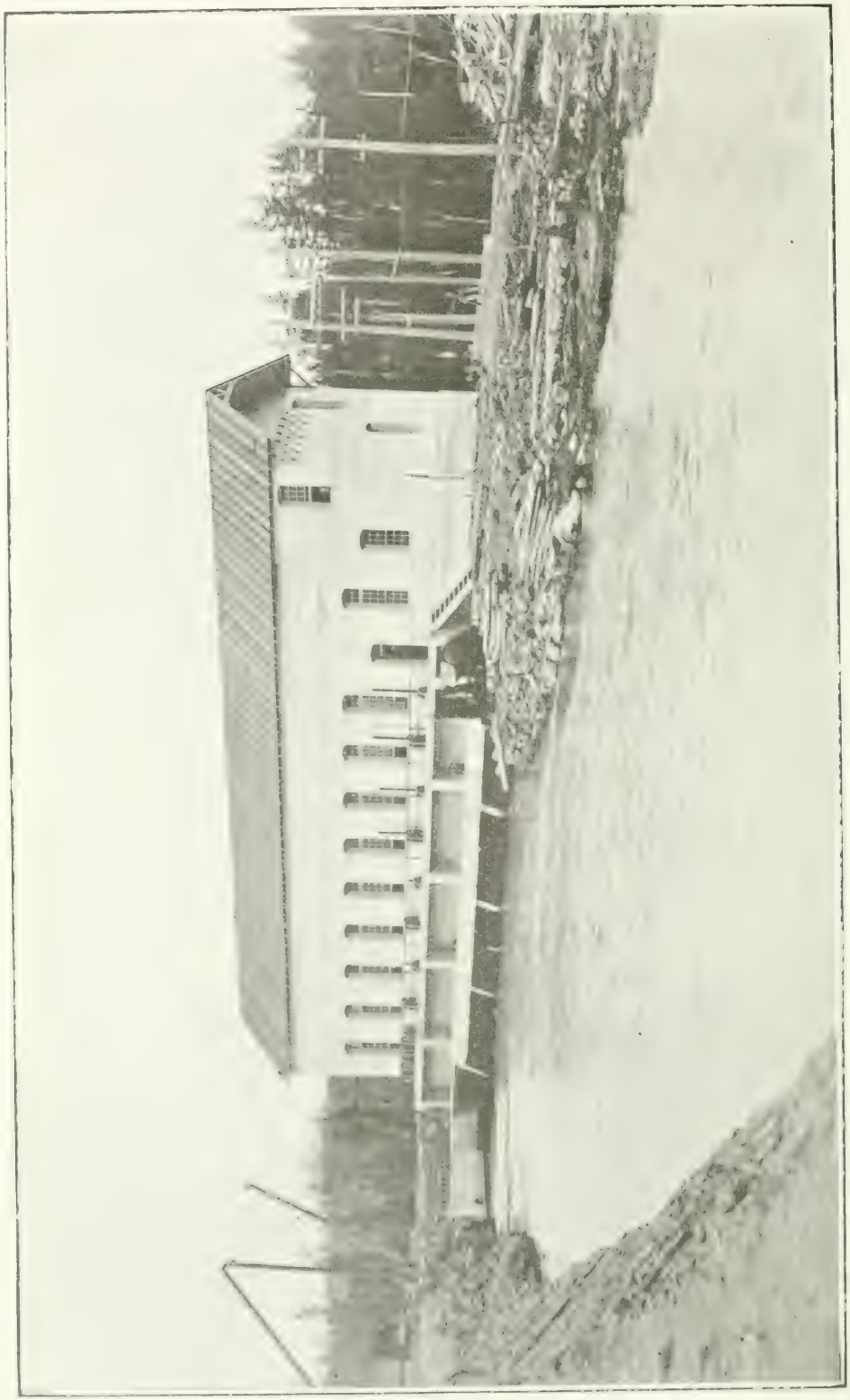
For ores and coarse concentrates containing 2,000 ounces and upwards of silver per ton, we will pay the full New York silver price, for 95 per cent. of the silver contents, no treatment charge.

For Vanner or Wilfley products, we will pay the New York silver price, less one cent per ounce for 94 per cent. of the silver contents, less $8.00 per ton treatment charge.

For jig concentrates containing from 400 to 2,000 ounces silver per ton, we will pay the New York silver price, less ½ cent per ounce for 95 per cent. of the silver contents, less treatment charge of $8.00 per ton.

Low grade "ores" are expected to run less than 10 per cent. arsenic.

All the above f.o.b. cars our works, Carnegie, Pa., P.C.C. and St. Louis Railway.



Cobalt Power Co., Intake side—Power House.

Silver price to be the average of the next 20 business days after date of arrival of material at our works.

Settlement in full 30 days after date arrival material our works.

No payment for cobalt.

No charge for sampling at our works.

The above proposition is contract basis, as previously stated. Our regular schedule for chance shippers on low grade ore provides for a reduction of 1 cent per ounce from the silver price, paying for 95 per cent. of the silver contents, less a treatment charge of $8.00 per ton, and in case of Wilfley or Vanner, a deduction of 1 cent per ounce from the silver price, paying for 94 per cent. of the silver contents, less a treatment charge of $8.00 per ton. In case of ores, a penalty on arsenic of 25 cents per ton for each per cent. in excess of 10 per cent.

Settlement assays to be the average of our results and shippers or shippers' representatives, if within splitting limits, otherwise reserve sample to be sent to umpire.

Splitting limits on ores of less than 150 ounces per ton to be 1½ ounces, on ores of 150 ounces and less than 500 ounces, 1 per cent. of contents, on ores of more than 500 ounces 8-10ths of 1 per cent. of contents.

11. Quirk, Barton & Company, London, England.

A contract is now running between the above smelting company and the Nipissing Mine at Cobalt. This contract is of a private nature and no general schedule has been issued, as the present contract fills the smelter's capacity for such ore. This is the only company now paying anything for the cobalt contents of the ore.

12. United States Metals Refining Company, New York—Works at Chrome, N J., U.S.A.

The silver ores from Cobalt that are being purchased by this Company are comparatively low grade, the richest containing 400 ounces silver per ton. No regular schedule is published but the prices vary with the character of the ore purchased.

Elk Lake District.

The country adjoining Elk Lake on the Montreal River was quiet during 1910. Work is being pushed on some of the best of the prospects with the intention of thoroughly proving the properties.

Two shipments were made, one from the Lucky Godfrey from a vein worked by an open cut and a small one from the Moose Horn.

Lucky Godfrey	17 tons
Moose Horn	3 tons

Gowganda District.

Development is progressing surely though quietly in this district and the shipment list shows seven names. Of this list, two, viz., The Millerett and Miller Lake-O'Brien, may now be looked upon as regular shippers.

Mines.	*Tonnage.*
Buswell	5.78
Boyd Gordon	30.00
Burns Bonus	2.00
Millerett	664.60
O'Brien (Miller Lake)	31.00
Reeves Dobie	61.00
Welsh	1.25
	735.63

A small mill of 20 tons daily capacity has recently been installed by the Reeves Dobie Co., and orders have been placed for a ten-stamp mill for the Millerett Mine.

The flow-sheets of these mills follow the general practice at Cobalt.

Good reports are also coming in from Hubert Lake, Calcite Lake, and Shining Tree Lake District. An option on a promising prospect south of Hanging Stone Lake has recently been taken up by the Hudson Bay Mining Company, of Cobalt. Several tons of high grade ore are already bagged, and it is intended to install a small plant on the property this winter.

South Lorrain District.

Shipments from this district during 1910 went to the smelters by way of Lake Temiskaming and Mattawa, and for that reason it is difficult to get definite information regarding them. The Wettlaufer was the principal shipper, but a small shipment also went out from the Bellellen as shown below.

Shipments During 1910.

Bellellen	9.7 tons
Wettlaufer	300.0 tons
Total	309.7 tons

Many of the prospects in this part of the country have been waiting for the introduction of electrical power by the British Canadian Power Co. before continuing development.

The sub-station at Beaver Lake was completed and power turned on by the end of November, so that the increased activity should be shown in 1911.

Porcupine.

The position of the new Porcupine Gold District is, roughly, one hundred miles north-west of Cobalt, and thirty-five miles west of Matheson on the Temiskaming and Northern Ontario Railway.

Since the discovery of these new gold fields in the autumn of 1909 interest has gradually increased until now it is widespread. The companies now in control of the leading properties are not only strong financially, but are composed mostly of experienced mining men, so that progressive and, at the same time, rational development is assured.

Considering that it is only a little more than a year since the first large discoveries of gold were made in the district, development is very satisfactory.

Cobalt Power Co.—Power House.

The following small plants have been installed by the beginning of 1911, which is all the more creditable when it is remembered that this machinery could only be taken in over the winter roads, and at the best this will seldom give more than one hundred days good teaming in a season.

Dome—

2 20 and 2 60 h.p. boilers.
1 381 foot Ingersoll Air Compressor.
5 Rand drills.
1 Nissen stamp.

Hollinger—

2 60 h.p. boilers
1 585-foot Sullivan air compressor.
4 Sullivan drills.
3 Waugh hammer drills.
1 2-stamp battery, Tremain.

Foley-O'Brien.

2 50 h.p. boilers.
1 448-foot Rand air compressor.
4 Rand drills.

Armstrong-McGibbon—

1 20 h.p. boiler.
2 Mac drills.

Crown Chartered—

2 50 h.p. boilers.
1 282-foot Rand air compressor.
2 Sullivan drills.

Scottish Ontario—

1 20 h.p. boiler.

Rea Mines—

1 20 h.p. boiler.

Vipond—

1 18 h.p. boiler.
1 Nissen stamp.

The above shows a total boiler horse-power capacity of 558. Hoists and pumps are not included in this list.

During the summer the small stamps at the Dome and Timmins properties were run on test lots of ore produced in development and from this work about 2,000 ounces gold were produced.

As a result of the first season's work larger plants have already been ordered in several cases to replace the small prospecting plants.

Cobalt Hydraulic Discharge Shaft.

The Dome Co. is taking in this winter a 40-stamp mill to be installed in the spring.

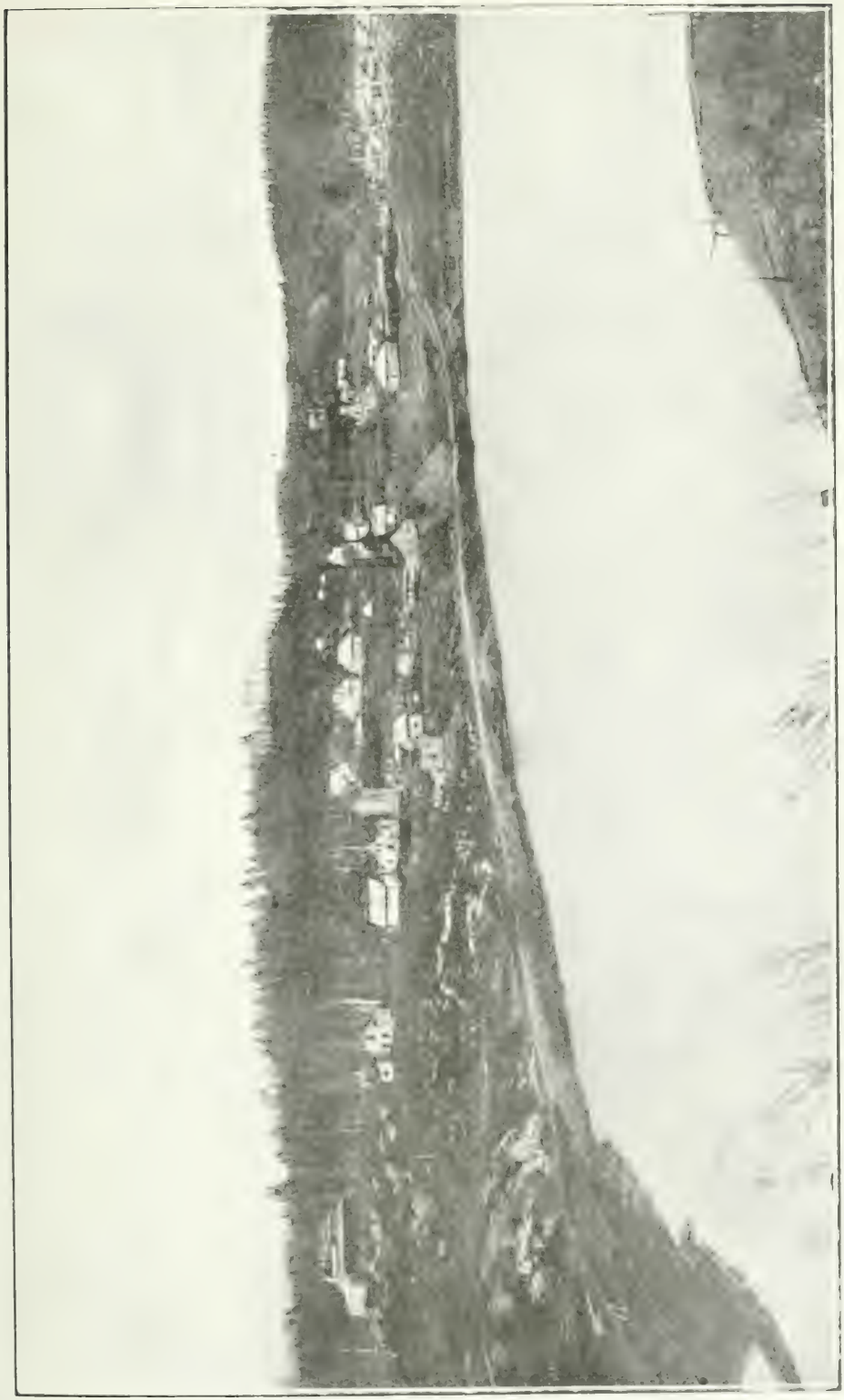
The Hollinger or Timmins Co. is already working on the foundations of a 30-stamp mill, which it hopes to have running early next summer. An outline flow sheet of this mill is sub-joined.

The Mettagami River running north through the western portion of the District has several large water powers conveniently situated to supply the camp with power. Preparations are now being made by two different companies to develop these, viz., Sandy and Wawaitan Falls, and these together are expected to develop from 10,000 to 12,000 h.p.

Freight is at present being teamed from the Temiskaming and Northern Ontario Railway, but a branch of the Railroad into the district is promised for the 1st of July, 1911.

Building operations are progressing apace, branch banks have been established as well as assay offices, and a sampling works.

All of these preparations portend a year of great activity in the district, which the rosy results obtained in 1910 seem to amply justify.



Kerr Lake—Southwest end.

FINANCIAL STATEMENTS

GENERAL BALANCE SHEET.

ASSETS.

Property Owned —		
Cost of Road to Oct. 31, '09	$13,192,355 81	
Cost of Road to Oct. 31, '10	1,001,263 70	
		$14,193,619 51
Cost of Equip. to Oct. 31, '09	1,499,607 47	
Cost of Equip. to Oct. 31, '10	219,194 65	
		1,718,802 12
Working Assets —		
Cash	27,818 84	
Foreign Freight Balance	2 88	
Net Bal. due from Agents and Conductors	8,248 26	
Accounts Collectible	95,161 02	
Material and Supplies	345,880 39	
		477,111 39
Deferred Debit Items —		
Paymaster's Advance	5,000 00	
Treasurer's Advance	50 00	
Insurance Paid in Advance	20,426 73	
Advance, Contracts—McRae, Chandler & McNeil	127,000 00	
Accounts in Suspense	60,845 30	
		213,322 03
		$16,602,855 05

LIABILITIES.

Debit : —		
Provincial Loan Account		$16,123,338 69
Working Liabilities :—		
Accounts Payable Inc. Pay Rolls	$203,481 95	
Car Mileage and Per Diem Balances	383 14	
Foreign Ticket Balance	9,772 86	
Foreign Telegraph	1,156 91	
Unclaimed Wages	1,996 71	
Deposit on Sidings	2,792 41	
Deposit on Contracts	21,755 78	
		241,339 76
Free Surplus : —		
Profit and Loss—Balance		238,176 60
		$16,602,855 05

PROFIT AND LOSS.

Paid Treasurer of Ontario	$420,000 00	By Balance, October 31st, 1909	$227,970 09
Doubtful Accounts written off	5,923 80	By Net Revenue, October 31st, 1910	436,130 31
Balance Carried Forward	238,176 60		
	$664,100 40		$664,100 40

STATEMENT SHOWING AMOUNT EXPENDED ON CONSTRUCTION, NORTH BAY TO COCHRANE.

November 1st, 1909, to October 31st, 1910.

Engineering expenses	$33,140 81
Right of way and station grounds	35,320 98
Grading	176,319 39
Bridges, trestles and culverts	44,549 13
Ties	11,384 62
Rails	20,726 12
Frogs and switches	3,494 74
Track fastenings and other material	16,112 47
Ballast	35,390 68
Track laying and surfacing	21,017 64
Roadway tools	3,365 38
Fencing right of way	1,428 26
Crossings and signs	3,739 89
Telegraph and telephone lines	2,915 60
Station buildings and fixtures	47,621 74
Shops, engine houses and turntables	55,176 94
Shop machinery and tools	16,488 10
Water stations	6,803 58
Fuel stations	8,027 07
Storage warehouses	14,319 40
Miscellaneous structures	1,986 87
Law expenses	2,786 59
General expenses	607 94
Electric light plants	88 73
Electric power plants	126 51
Total Construction	$562,939 18

STATEMENT SHOWING AMOUNT EXPENDED ON ADDITIONS AND BETTERMENTS.

November 1st, 1909, to October 31st, 1910.

Right of way and station grounds	$2,442 42
Widening cuts and fills	30,172 95
Protection of Banks	4,479 32
Grade revisions and changes of line	24,444 84
Bridges, trestles and culverts	73,148 16
Track fastenings	16,662 53
Ballast	2,602 30
Additional main tracks	85,228 60
Sidings and spur tracks	74,075 82
Terminal yards	2,672 97
Fencing right of way	9,937 01
Telegraph and telephone lines	27,018 25
Station buildings and fixtures	66,361 86
Shops, engine houses and turntables	1,656 25
Shop machinery and tools	7,396 84
Water and fuel stations	6,483 58
Miscellaneous structures	3,540 82
Total Additions and Betterments	$438,324 52

Expended on Construction, 1910	$562,939 18
Expended on Additions and Betterments, 1910	438,324 52
Expended on Equipment, 1910	219,194 65
Total Expenditure	$1,220,458 35

Earnings and Expenses by Months,

No.	RECEIPTS.	Per Cent.	1909 November.	Per Cent.	1909 December.
	I. Revenue from transportation:		$ c.		$ c.
1	Freight revenue		92,090 74		96,287 55
2	Passenger revenue		48,806 76		60,544 27
3	Excess baggage revenue		564 55		418 95
4	Parlor and chair car revenue				
5	Mail revenue		1,070 26		1,111 43
6	Express revenue		3,281 54		3,124 19
7	Milk revenue (on passenger trains)		3 32		1 84
8	Other passenger train revenue				
9	Switching revenue		426 84		
10	Special service train revenue				
11	Miscellaneous transportation revenue				
	Total		146,244 01		161,488 23
	II. Revenue from operations other than transportation:—				
12	Telegraph and telephone		5,015 50		2,978 74
13	Station and train privileges		166 67		166 66
14	Parcel room receipts				
15	Storage—freight		288 08		433 37
16	Storage—baggage		132 75		117 85
17	Car service demurrage		1,986 75		2,554 00
18	Rents of buildings and other property		2,369 14		564 43
19	Miscellaneous		1,024 88		
	Total		10,983 77		6,815 05
	Total revenue		157,227 78		168,303 28
	EXPENDITURES.				
i	Maintenance of way and structures	23.7	37,264 09	25.3	42,798 33
ii	Maintenance of equipment	6.6	10,416 05	6.4	10,922 46
iii	Traffic expenses	.8	1,282 54	.1	808 62
iv	Transportation expenses	38.2	60,120 51	34.3	58,018 04
v	General expenses	3.5	5,577 03	4.3	7,465 07
	Total operating expenses	72.8	114,660 22	71.4	120,012 52
	Balance		42,567 56		48,290 76
	Other Income:				
	Ore royalties		4,784 48		
	Hire of equipment				
	Total		47,352 04		48,290 76
	Deductions from Income:				
	Hire of equipment		6,804 51		5,258 28
	Outside operations				
	Interest				
	Net result		40,547 53		43,032 48

November 1st, 1909, to October 31st, 1910.

Per Cent.	1910 January	Per Cent.	1910 February.	Per Cent.	1910 March.	Per Cent.	1910 April.	No.
	$ c.		$ c.		$ c.		$ c.	
.....	86,470 56	.....	66,668 83	.....	94 279 75	.....	66,550 06	1
.....	53,701 42	.....	43,545 96	.....	56,286 80	.....	57,113 63	2
.....	563 22	.....	381 61	.....	611 82	.....	630 50	3
.....	.....	.....	.....	.....	.....	.....	.....	4
.....	1,070 26	.....	1,082 94	.....	1,162 73	.....	1,119 66	5
.....	3,502 18	.....	3,119 50	.....	2,396 36	.....	2,902 16	6
.....	1 28	.....	2 40	.....	4 87	.....	3 36	7
.....	.....	.....	.....	.....	.....	.....	.....	8
.....	298 26	.....	357 35	.....	413 96	.....	332 00	9
.....	80 00	.....	405 00	.....	300 00	.....	158 00	10
.....	.....	.....	.....	.....	.....	.....	.....	11
.....	145,687 18	.....	115,563 59	.....	155,456 29	.....	128,809 37	
.....	3,353 89	.....	2,346 40	.....	2,928 78	.....	2,714 45	12
.....	216 66	.....	310 13	.....	250 59	.....	216 66	13
.....	.....	.....	.....	.....	.....	.....	.....	14
.....	391 36	.....	233 49	.....	192 85	.....	198 48	15
.....	104 60	.....	80 25	.....	71 25	.....	95 15	16
.....	3,054 00	.....	1,502 00	.....	1,465 00	.....	906 00	17
.....	1,620 74	.....	793 89	.....	657 13	.....	722 62	18
.....	.....	.....	.....	.....	15	.....	162 63	19
.....	8,741 25	.....	5,266 16	.....	5,565 75	.....	5,015 99	
.....	154,428 43	.....	120,829 75	.....	161,022 04	.....	133,825 36	
13.7	21,224 46	11.5	13,989 48	10.	16,176 12	18.7	25,097 28	i
8.6	13,301 13	9.6	11,560 88	9.1	14,592 68	11.1	14,917 88	ii
.1	908 83	1.1	1,426 80	.9	1,541 09	.9	1,258 04	iii
36.4	56,277 68	42.4	51,236 17	31.5	50,789 30	32.1	42,846 51	iv
3.4	5,379 24	4.8	5,756 57	4.	6,480 33	4.1	5,449 85	v
62.2	97,091 34	69.4	83,969 90	55.5	89,579 52	66.9	89,569 56	
.....	57,337 09	.....	36,859 85	.....	71,442 52	.....	44,255 80	
.....	3,520 91	.....	4,953 49	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	60,858 00	.....	41,813 34	.....	71,442 52	.....	44,255 80	
.....	6,445 61	.....	2,595 94	.....	4,474 77	.....	4,408 33	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	54,412 39	.....	39,217 40	.....	66,967 75	.....	39,847 47	

Earnings and Expenses by Months,

No.	RECEIPTS.	Per cent.	1910 May.	Per Cent.	1910 June.	Per Cent.	1910 July.
			$ c		$ c		$ c
	I. Revenue from transportation:						
1	Freight revenue		54,279 17		60,514 53		50,332 92
2	Passenger revenue		50,396 41		46,391 00		47,997 44
3	Excess baggage revenue		697 16		534 59		342 10
4	Parlor chair car revenue						
5	Mail revenue		1,119 66		1,119 66		1,119 66
6	Express revenue		3 013 58		2,973 57		2,936 85
7	Milk revenue (on passenger trains)		3 13		1 90		1 57
8	Other passenger train revenue						
9	Switching revenue		464 00		606 13		550 99
10	Special service train revenue						324 00
11	Miscellaneous transportation revenue						
	Total		109,973 11		112,141 38		103,605 53
	II. Revenue from operations other than transportation						
12	Telegraph and telephone		2,631 91		2,519 04		2,881 23
13	Station and train privileges		309 81		260 54		177 17
14	Parcel room receipts						18 40
15	Storage—freight		2 00		182 60		93 49
16	Storage—baggage		74 40		62 95		86 40
17	Car service demurrage		150 00		399 50		555 40
18	Rents of buildings and other property		465 10		799 27		741 60
19	Miscellaneous		320 10		53 75		35 90
	Total		3,953 32		4,277 65		4,589 59
	Total revenue		113,926 43		116,419 03		108,195 12
	EXPENDITURES.						
i.	Maintenance of way and structures	20.5	23,393 77	29.8	34,683 68	36.9	39,992 15
ii.	Maintenance of equipment	9.5	10,735 11	10.9	12,645 51	7.5	8,132 73
iii.	Traffic expenses	1.	1,551 25	.9	1,108 11	1.6	1,761 84
iv.	Transportation expenses	37.	42,059 74	35.6	41,466 83	34.6	37,446 99
v.	General expenses	5.4	5,964 63	7.	8,134 46	5.8	6,208 70
	Total operating expenses	73.4	83,704 50	84.2	98,038 59	86.4	93,542 41
	Balance		30,221 93		18,380 44		14,652 71
	Other Income						
	Ore royalties						1,448 72
	Hire of equipment						
	Total		30,221 93		18,380 44		16,101 43
	Deductions from income:						
	Hire of equipment		879 10		2,533 16		
	Outside operations		237 05		484 43		
	Interest						
	Net result		29,105 78		15,362 85		16,101 43

November 1st, 1909, to October 31st, 1910.

Per cent.	1910 August.	Per cent.	1910 September.	Per cent.	1910 October.	Per cent.	Total.	No.
	$ c.		$ c.		$ c.		$ c.	
.....	68,483 44	.....	60,777 77	.....	56,151 14	.....	852,886 46	1
.....	47,684 65	.....	48,838 05	.....	45,661 52	.....	606,967 91	2
.....	445 15	.....	467 00	.....	540 85	.....	6,197 50	3
.....	.....	.....	.....	.....	.....	.....	.....	4
.....	1,162 73	.....	1,086 33	.....	1,070 26	.....	13,295 58	5
.....	2,881 16	.....	3,058 06	.....	2,988 31	.....	36,177 46	6
								7
.....	.....	.....	.....	.....	.....	.....	23 67	
.....	.....	.....	.....	.....	.....	.....	.....	8
.....	600 94	.....	362 00	.....	292 00	.....	4,704 47	9
.....	.....	.....	500 00	.....	.....	.....	1,767 00	10
.....	.....	.....	.....	.....	.....	.....	.....	11
.....	121,258 07	.....	115,089 21	.....	106,704 08	.....	1,522,020 05	
.....	2,246 83	.....	2,508 04	.....	2,654 07	.....	34,778 88	12
.....	216 66	.....	216 66	.....	243 22	.....	2,751 44	13
.....	36 35	.....	16 60	.....	149 70	.....	221 05	14
.....	78 77	.....	147 20	.....	126 58	.....	2,368 27	15
.....	66 77	.....	66 40	.....	53 55	.....	1,012 32	16
.....	583 00	.....	395 00	.....	429 38	.....	13,980 03	17
.....	2,495 85	.....	596 98	.....	758 61	.....	12,585 36	18
.....	86 77	.....	35 91	.....	414 54	.....	1,134 63	19
.....	5,811 00	.....	3,982 79	.....	4,829 65	.....	69,831 97	
.....	127,069 07	.....	119,072 00	.....	111,533 73	.....	1,591,852 02	
37.1	47,218 19	40.6	48,319 42	27.3	30,157 78	.....	380,314 75	i.
9.5	12,111 91	7.	8,366 96	8.6	9,637 16	.....	137,340 46	ii.
.6	776 29	.9	1,074 01	1.2	1,422 62	.....	14,920 04	iii.
31.7	40,242 94	32.2	38,324 90	33.9	37,910 84	.....	556,740 45	iv.
5.4	6,854 84	5.8	6,890 20	5.2	5,884 74	.....	76,045 66	v.
84.3	107,204 17	86.5	102,975 49	76.2	85,013 14	.....	1,165,361 36	
.....	19,864 90	.....	16,096 51	.....	26,520 59	.....	426,490 66	
.....	.....	.....	.....	.....	18,504 04	.....	31,762 92	
.....	.....	.....	5,876 05	.....	7,474 07	.....	7,474 07	
.....	19,864 90	.....	21,972 56	.....	52,498 70	.....	465,727 65	
.....	973 03	.....	.....	.....	.....	.....	27,047 96	
.....	250 00	.....	368 43	.....	300 00	.....	1,639 91	
.....	.....	.....	.....	.....	909 47	.....	909 47	
.....	18,641 87	.....	21,604 13	.....	51,289 23	.....	436,130 31	

Expenses by Months,

	Maintenance of Way and Structures.	1909 November.	1909 December.	1910 January.	1910 February.	1910 March.
		$ c.	$ c.	$ c.	$ c.	$ c.
1	Superintendence	589 24	714 83	867 32	808 47	860 77
2	Ballast	42 46	824 56	178 97	74 10	99 63
3	Ties	6,956 75	2,452 19	10 21	23 00	*8 32
4	Rails	320 58	4,778 53	6,833 98	.....	283 38
5	Other Track Material	400 95	2,623 94	573 49	733 02	767 46
6	Roadway and Track	18,099 81	11,220 38	4,769 17	8,079 84	9,980 08
7	Removal of Snow, Sand and Ice	394 61	3,060 11	5,201 45	4,471 53	1,731 95
8	Tunnels	.....	.....	.....	.....	.....
9	Bridges, Trestles and Culverts	2,465 52	1,500 22	274 10	363 89	515 36
10	Over and Under Grade Crossings	.....	.....	6 00	*1,294 89	.....
11	Grade Crossings, Fences, Cattle Guards and Signs	517 09	445 00	13 95	117 77	129 98
12	Snow and Sand Fences and Snowsheds	32 80	5 44	.....	.....	.....
13	Signals and Interlocking Plants	.....	.....	.....	20	.....
14	Telegraph and Telephone Lines	1,321.39	2,946 54	375 39	357 12	627 20
15	Electric Power Transmission	.....	110 00	45 40	276 00	*11 50
16	Buildings, Fixtures and Grounds	5,708 02	11,725 22	1,384 82	*408 68	682 42
17	Docks and Wharves	.....	.....	.....	.....	.....
18	Roadway Tools and Supplies	315 50	298 46	553 34	280 34	370 66
19	Injuries to Persons	25 00	.....	25 00	.....	62 50
20	Stationery and Printing	74 37	92 91	73 09	70 24	61 56
21	Other Expenses	.....	.....	38 78	37 53	22 99
22	Maintaining Joint Tracks, Yards and other facilities—Dr	.....	.....	.....	.....	.....
23	Maintaining Joint Tracks, Yards and other facilities—Cr	.....	.....	.....	.....	.....
	Totals	37,264 09	42,798 33	21,224 46	13,989 48	16,176 12

*Cr.

November 1st, 1909, to October 31st, 1910.

1910 April.	1910 May.	1910 June.	1910 July.	1910 August.	1910 September.	1910 October.	Total.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
167 20	951 24	1,015 56	1,252 26	1,345 34	1,547 73	1,592 91	11,712 87
1,827 77	1,329 60	2,104 65	4,220 62	3,529 93	434 18	752 85	15,419 32
3,114 81	1,274 97	9,309 84	7,224 65	8,220 70	7,593 91	4,942 81	51,115 52
416 95	488 57	*2,935 81	525 99	598 30	926 74	3,934 80	16,172 01
1,192 88	1,967 69	*1 69	12 40	42 80	*293 75	211 17	8,230 36
12,765 23	12,872 10	21,588 03	18,554 98	27,125 65	32,597 20	15,493 43	193,145 90
7 56	*54 45	.....	.....	.....	.....	.....	14,812 76
.....	.....	.....	.....	.....	.....	.....	.....
1,507 19	624 18	467 57	2,213 27	2,990 04	2,177 85	1,061 19	16,160 38
947 33	.....	.....	383 03	.....	.....	.....	41 47
269 57	305 56	36 98	180 10	469 29	573 38	21 49	3,080 16
.....	.....	.....	.....	.....	.....	.....	38 24
64	.....	.....	.....	.....	.....	.....	84
565 14	309 12	428 25	410 47	424 69	332 27	437 67	8,535 25
*3 30	135 41	*1 40	*1 70	.....	50 85	.....	599 76
1,556 48	2,588 95	2,012 05	3,258 00	2,120 39	2,045 45	1,376 81	34,049 93
.....	.....	.....	.....	.....	.....	.....	.....
683 19	499 39	584 25	1,088 03	323 69	310 31	311 09	5,618 25
.....	.....	.....	678 80	.....	.....	.....	791 30
69 44	101 44	75 40	*8 75	27 37	23 30	21 56	681 93
9 20	.....	.....	.....	.....	.....	.....	108 50
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
25,097 28	23,393 77	34,683 68	39,992 15	47,218 19	48,319 42	30,157 78	380,314 75

*Cr.

Expenses by Months,

	Maintenance of Equipment.	1909 November.	1909 December.	1910 January.	1910 February.	1910 March.
		$ c.	$ c.	$ c.	$ c.	$ c.
24	Superintendence	869 02	836 43	836 95	916 70	894 68
25	Steam Locomotives—Repairs	5,213 67	5,379 70	6,263 45	4,744 96	7,491 04
26	" " Renewals					
27	" " Depreciation					
28	Electric Locomotives—Repairs					
29	" " Renewals					
30	" " Depreciation					
31	Passenger Train Cars—Repairs	1,651 21	2,171 66	2,340 37	2,374 18	1,926 25
32	" " " Renewals					
33	" " " Depreciation					
34	Freight Train Cars—Repairs	2,690 77	2,012 74	2,606 80	1,634 33	2,544 74
35	" " " Renewals					
36	" " " Depreciation					
37	Electric Equipment of Cars, Repairs					
38	" " " Renewals					
39	" " Depreciation					
40	Floating Equipment—Repairs					
41	" " Renewals					
42	" " Depreciation					
43	Work Equipment—Repairs	161 10	255 05	584 17	1,299 56	1,147 54
44	" " Renewals					
45	" " Depreciation					
46	Shop Machinery and Tools	319 15	492 94	447 67	476 04	341 21
47	Power Plant Equipment	59 21	371 38	131 19	74 82	91 82
48	Injuries to Persons			25 00		62 50
49	Stationery and Printing	97 25	47 91	65 53	40 29	92 90
50	Other Expenses	*645 33	*645 35			
51	Maintaining Joint Equipment at Terminals—Dr					
52	Maintaining Joint Equipment at Terminals—Cr					
	Totals	10,416 05	10,922 46	13,301 13	11,560 88	14,592 68

	Traffic Expenses.	1909 November.	1909 December.	1910 January.	1910 February.	1910 March.
		$ c.	$ c.	$ c.	$ c.	$ c.
53	Superintendence	940 52	579 74	728 16	677 78	693 27
54	Outside Agencies			25 88	2 24	15 30
55	Advertising	200 00	215 00	140 00	592 98	734 49
56	Traffic Associations					
57	Fast Freight Lines					
58	Industrial and Immigration Bureaus					
59	Stationery and Printing	142 02	13 88		153 80	98 12
60	Other Expenses			14 79		
	Totals	1,282 54	808 62	908 83	1,426 80	1,541 69

* Cr.

November 1st, 1909, to October 31st, 1910.

1910 April.	1910 May.	1910 June.	1910 July.	1910 August.	1910 September.	1910 October.	1910 Total.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
812 61	1,024 47	929 65	855 50	959 56	851 26	1,054,77	10,841 60
6,054 95	5,022 26	5,685 03	6,157 93	5,266 28	4,438 16	4,193 92	65,911 35
1,546 31	986 86	1,520 67	1,957 83	1,773 60	1,255 61	2,388 50	21,893 05
			*3,490 24				*3,490 24
2,245 67	1,389 30	2,035 19	2,266 04	1,427 82	1,341 96	645 62	22,840 98
			*1,801 56		*221 28		*2,022 84
3,628 75	2,021 09	1,895 55	1,506 15	2,051 23	428 11	929 26	15,907 56
366 91	333 18	494 04	519 75	515 92	269 47	353 99	4,930 27
65 16	7 45	8 81	70 12	86 64	38 24	23 97	1,026 81
							87 50
198 02	83 07	76 57	91 21	34 46	16 28	45 03	888 52
1 50	*132 57			*3 60	*50 85	2 10	*1,474 10
14,917 88	10,735 11	12,645 51	8,132 73	12,111 91	8,366 96	9,637 16	137,340 46

1910 April.	1910 May.	1910 June.	1910 July.	1910 August.	1910 September.	1910 October.	1910 Total.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
748 83	701 41	790 75	973 51	616 51	709 71	834 08	8,994 27
7 21	3 04	89	20 76	27	5 60		81 19
329 30	747 59	232 34	673 10	125 00	338 83	296 89	4,625 43
				1 00		69 57	70 57
172 70	99 21	84 13	94 47	33 51	19 87	222 08	1,133 79
							14 79
1,258 04	1,551 25	1,108 11	1,761 84	776 29	1,074 01	1,422 62	14,920 04

Expenses by Months,

	Transportation Expenses.	1909 November.	1909 December.	1910 January.	1910 February.	1910 March.
		$ c.	$ c.	$ c.	$ c.	$ c.
61	Superintendence	637 00	906 01	824 46	925 31	958 67
62	Despatching Trains	503 80	166 76	459 26	463 34	399 11
63	Station Employees	5,916 16	6,016 16	6,274 87	5,914 24	5,654 20
64	Weighing and Car Service Associations	21 28	25 17	32 00	27 40	22 44
65	Coal and Ore Docks					
66	Station Supplies and Expenses	1,776 15	2,250 26	1,579 35	1,124 53	1,157 25
67	Yardmasters and their Clerks	196 50	150 00	171 00	213 00	215 00
68	Yard Conductors and Brakemen	1,714 81	1,547 86	1,707 70	1,149 35	1,477 53
69	Yard Switch and Signal Tenders	167 89	44 97	251 07	203 44	341 71
70	Yard Supplies and Expenses	66 77	250 42	59 57	54 83	62 21
71	Yard Enginemen	1,010 32	1,071 65	1,015 03	740 07	958 43
72	Engine-house Expenses—Yard	89 45	127 68	176 29	168 85	265 32
73	Fuel for Yard Locomotives	2,976 33	3,199 43	2,307 62	2,449 69	1,836 58
74	Water for Yard Locomotives	54 25	93 19	83 23	102 96	117 78
75	Lubricants for Yard Locomotives	36 67	52 40	68 85	59 64	48 29
76	Other Supplies for Yard Locomotives	55 54	29 89	25 72	16 92	22 02
77	Operating Joint Yards and Terminals—Dr.	3,271 40	2,986 77	2,752 82	2,334 11	2,267 59
78	Operating Joint Yards and Terminals—Cr.					
79	Motormen					
80	Road Enginemen	5,988 74	5,810 58	5,026 50	4,504 93	4,974 48
81	Engine-house Expenses—Road	1,333 12	1,407 92	1,578 57	1,538 35	1,898 67
82	Fuel for Road Locomotives	19,417 47	18,001 38	19,798 63	17,721 71	17,182 85
83	Water for Road Locomotives	779 96	940 08	772 30	936 25	1,001 57
84	Lubricants for Road Locomotives	298 13	491 61	410 68	305 14	323 64
85	Other Supplies for Road Locomotives	203 80	294 93	238 31	202 79	97 82
86	Operating Power Plants					
87	Purchased Power					
88	Road Trainmen	5,757 38	5,463 55	5,313 44	4,657 66	4,932 99
89	Train Supplies and Expenses	1,243 31	2,466 49	1,861 10	1,688 39	1,442 19
90	Interlockers, Block and other Signals—Operations					
91	Crossing, Flagmen and Gatemen					
92	Drawbridge Operation					
93	Clearing Wrecks	903 66	694 77	272 69	563 11	428 61
94	Telegraph and Telephone—Operation	1,891 23	1,733 27	1,925 36	1,784 51	1,761 78
95	Operating Floating Equipment					
96	Express Service					
97	Stationery and Printing	1,069 92	1,177 81	973 16	1,022 51	614 86
98	Other Expenses					
99	Loss and Damage—Freight	123 40	137 03	128 10	98 14	184 71
100	Loss and Damage—Baggage	*5 00	92 00	115 00		
101	Damage to Property	6 07				
102	Damage to Stock on Right of Way	50 00	122 00	25 00	69 00	
103	Injuries to Persons	2,565 00	176 00	50 00	205 00	141 00
104	Operating Joint Tracks—Dr.					
105	Operating Joint Tracks—Cr.					
	Totals	60,120 51	58,018 04	56,277 68	51,236 17	50,789 30

* Cr.

November 1st, 1909, to October 31st, 1910.

1910 April.	1910 May.	1910 June.	1910 July.	1910 August.	1910 September.	1910 October.	Total.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
857 20	708 97	743 50	493 75	984 67	714 21	703 09	9,456 84
414 32	773 34	566 85	664 35	690 44	652 50	611 54	6,365 61
5,532 61	6,305 79	6,398 58	6,162 57	5,889 81	6,205 58	6,192 97	72,553 54
23 87	22 02	19 63	20 40	21 28	15 70	14 58	265 77
.....	.....	.....	.....	.....	.....	.....	.....
1,007 69	513 75	576 23	171 72	309 50	630 07	724 54	1,826 04
215 00	229 99	178 00	185 00	185 00	185 00	185 00	2,308 49
1,098 59	987 85	1,007 11	884 73	948 68	902 93	1,219 78	14,646 92
376 14	303 90	328 54	342 82	330 52	.....	23 7	2,714 70
65 60	49 78	54 55	50 14	50 93	57 67	4 73	827 22
759 32	744 47	705 51	695 05	702 28	668 87	706 86	9,082 81
110 93	113 75	186 23	214 01	198 73	208 84	268 58	2,823 71
1,678 50	1,496 15	1,343 57	1,190 02	1,402 51	1,087 87	1,193 12	22,161 39
77 11	62 70	60 91	66 99	22 58	74 61	59 33	875 64
46 10	41 80	*8 52	40 61	.....	36 44	37 69	459 97
*175 40	16 21	23 00	11 62	7 90	12 61	12 23	58 26
2,563 53	2,589 73	2,499 43	2,044 23	2,493 27	2,189 70	2,232 73	30,225 31
.....	.....	.....	*4 00	.....	.....	.....	*4 00
.....	.....	.....	.....	.....	.....	.....	.....
3,992 48	3,914 16	4,308 06	4,228 67	4,600 58	4,078 41	3,665 63	55,093 22
1,168 88	1,259 74	897 47	912 18	773 76	848 69	929 62	14,546 97
13,769 94	13,471 31	12,979 24	12,872 76	13,858 63	12,421 82	10,502 04	181,997 78
873 19	707 74	754 29	950 50	762 94	648 76	622 06	9,749 64
240 81	244 70	72 72	241 74	258 17	227 11	210 69	3,325 14
84 00	87 14	107 23	57 23	78 78	52 40	70 29	1,574 72
.....	168 63	.....	25 33	.....	.....	.....	193 96
.....	.....	.....	.....	.....	.....	.....	.....
4,109 86	4,168 81	4,323 04	4,066 88	4,366 70	4,117 98	4,539 82	55,818 11
1,034 23	1,031 28	1,230 66	975 32	746 22	1,295 93	2,026 11	17,041 23
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
208 80	1,223 82	105 35	227 06	229 50	173 56	92 80	5,123 73
1,605 01	3 54	8 05	6 66	12 83	42 15	5 63	10,780 02
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
964 12	892 63	719 58	808 23	657 78	545 25	647 37	10,093 22
.....	.....	.....	*26 01	.....	.....	26 01	.....
100 08	*236 59	352 49	383 58	*407 29	203 26	322 28	1,389 19
44 00	*96 87	3 03	17 01	1 65	26 98	10 00	207 80
.....	.....	.....	.....	.....	.....	.....	6 07
.....	.....	50 00	65 00	40 00	.....	50 00	462 00
.....	254 50	872 50	*1,599 16	24 59	.....	.....	2,689 43
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
42,846 51	42,059 74	41,466 83	37,446 99	40,242 94	38,324 90	37,910 84	556,749 45

Expenses by Months,

	General Expenses.	1909 November.	1909 December.	1910 January,	1910 February.	1910 March.
		$ c.	$ c.	$ c.	$ c.	$ c.
106	Salaries and Expenses of General Officers	1,207 46	2,333 51	1,113 06	1,116 84	2,204 51
107	Salaries and Expenses of Clerks and Attendants	1,775 63	2,460 68	1,715 44	1,568 85	1,503 98
108	General Office Supplies and Expenses	708 59	441 07	565 76	655 81	384 07
109	Law Expenses	400 00	551 36	400 00	390 00	662 21
110	Insurance	1,202 90	1,562 87	1,323 45	1,737 52	1,426 83
111	Relief Department Expenses					
112	Pensions					
113	Stationery and Printing	282 45	115 85	160 72	192 18	63 11
114	Other Expenses		*27	100 81	95 37	235 62
115	General Administration Joint Tracks, Yards and Terminals—Dr.					
116	General Administration Joint Tracks, Yards and Terminals—Cr.					
	Totals	5,577 03	7,465 07	5,379 24	5,756 57	6,480 33

Cr

November 1st, 1909, to October 31st, 1910.

1910 April.	1910 May.	1910 June.	1910 July.	1910 August.	1910 September.	1910 October.	Total.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1,075 21	1,170 92	2,218 38	1,085 42	1,166 73	2,230 51	1,060 94	17,983 49
1,690 95	1,887 29	2,450 69	1,980 81	2,633 61	1,958 63	1,920 24	23,546 80
348 33	325 52	498 79	398 83	354 31	363 51	554 59	5,599 18
465 00	415 00	563 11	408 00	500 00	485 65	500 00	5,740 33
1,724 36	1,920 86	1,865 61	2,080 36	2,181 36	1,833 36	1,833 36	20,692 84
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
145 73	245 59	513 82	255 28	18 83	5 69	13 34	2,012 59
27	*55	24 06	.....	.....	12 85	2 27	470 43
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
5,449 85	5,964 63	8,134 46	6,208 70	6,854 84	6,890 20	5,884 74	76,045 66

Comparative Statement of Earnings and Expenses by

	RECEIPTS.	Per Cent.	1908 November.	Per Cent.	1909 November.	Per Cent.	1908 December.
			$ c		$ c		$ c
	I. Revenue from Transportation:						
1	Freight revenue		41,940 16		92,090 74		55,271 59
2	Passenger revenue		34,526 02		48,806 76		47,000 56
3	Excess baggage revenue		292 62		564 55		167 66
4	Mail revenue		873 50		1,070 26		943 37
5	Express revenue		1,853 75		3,281 54		1,738 82
6	Milk revenue (on passenger trains)				5 32		57
7	Other passenger train revenue						
8	Switching revenue		2,064 92		426 84		3,011 20
9	Special service train revenue						15 00
10	Miscellaneous transportation revenue		267 78				488 14
	Total		81,818 75		146,244 01		108,636 91
	II. Revenue from operations other than transportation:—						
11	Telegraph and Telephone		5,669 41		5,015 50		4,178 03
12	Station and train privileges		150 00		166 67		150 00
13	Parcel room receipts						
14	Storage—freight		14 34		288 08		48 83
15	Storage—baggage		70 05		132 75		89 50
16	Car service demurrage		1,448 00		1,986 75		936 00
17	Rents of buildings and other property		2,223 93		2,369 14		1,295 21
18	Miscellaneous				1,024 88		1,741 45
	Total		9,575 73		10,983 77		8,439 02
	Total revenue		91,394 48		157,227 78		117,075 93
	EXPENDITURES						
i.	Maintenance of way and structures	12.2	12,011 41	23.7	37,264 09	7.9	9,798 90
ii.	Maintenance of equipment	12.3	12,049 51	6.6	10,416 05	10.4	12,887 29
iii.	Traffic Expenses	.9	914 00	.8	1,282 54	.7	861 54
iv.	Transportation Expenses	37.2	36,537 29	38.2	60,120 51	31.9	39,451 61
v.	General Expenses	2.1	2,082 79	3.5	5,577 03	3.4	4,208 44
	Total operating expenses	64.7	63,595 00	72.8	114,660 22	54.3	67,207 77
	Balance		27,799 48		42,567 56		49,868 16
	Other Income:						
	Ore royalties				4,784 48		64,340 30
	Hire of equipment		6,909 55				6,553 95
	Total		34,709 03		47,352 04		120,762 41
	Deductions from income:						
	Hire of equipment				6,804 51		
	Outside operations						
	Interest						
	Net result		34,709 03		40,547 53		120,762 41

Months—November 1st, 1908, to October 31st, 1910.

Per Cent.	1909 December.	Per Cent.	1909 January.	Per Cent.	1910 January.	Per Cent.	1909 February.	No.
	$ c		$ c		$ c		$ c	
.....	96,287 55	.....	42,499 11	.....	86,470 56	.....	55,920 90	1
.....	60,544 27	.....	32,373 83	.....	53,701 42	.....	35,812 85	2
.....	418 95	.....	202 28	.....	563 22	.....	228 85	3
.....	1,111 43	.....	898 78	.....	1,070 26	.....	841 11	4
.....	3,124 19	.....	1,941 43	.....	3,502 18	.....	1,795 44	5
.....	1 84	.....	4 90	.....	1 28	.....	.....	6
.....	.....	.....	.....	.....	.....	.....	.....	7
.....	.....	.....	2,318 56	.....	298 26	.....	1,519 39	8
.....	.....	.....	121 75	.....	80 00	.....	328 90	9
								10
.....	.....	.....	.....	.....	.....	.....	.....	
.... .	161,488 23	....	80,360 64	.....	145,687 18	.....	96,447 44	
.....	2,978 74	.....	2,439 89	.....	3,353 89	.....	3,093 84	11
.....	166 66	.....	166 67	.....	216 66	.....	166 67	12
....	.....	.....	.....	...	.....	.....	.....	13
.....	433 37	.....	.....	.....	391 36	.....	418 10	14
.....	117 85	... ..	.....	.....	104 60	.....	79 95	15
.....	2,554 00	.....	948 00	.....	3,054 00	.....	1,000 00	16
								17
.....	564 43	.....	491 46	.....	1,620 74	.....	517 46	
.....	....	.....	603 36	.....	....	.....	89 86	18
.....	6,815 05	.....	4,649 38	.....	8,741 25	.....	5,365 88	
.....	168,303 28	.....	85,010 02	.....	154,428 43	.....	101,813 32	
[25.3	42,798 33	9.9	8,417 11	13.7	21,224 46	11.3	11,538 15	i.
6.4	10,922 46	14.2	12,073 87	8.6	13,301 13	16.3	16,613 25	ii.
.1	808 62	1.1	920 20	.1	908 83	.9	808 04	iii.
34.3	58,018 04	51.9	44,117 04	36.4	56,277 68	45.7	46,479 56	iv.
4.3	7,465 07	5.1	4,366 96	3.4	5,379 24	3.8	3,938 71	v.
71.4	120,012 52	82.2	69,895 18	62.2	97,091 34	78.0	79,449 71	
.....	48,290 76	.....	15,114 84	.....	57,337 09	.... .	22,363 61	
.....	.....	.....	2,184 83	.....	3,520 91	.....	33,239 25	
.....	....	.....	.....	.....	.....	.....	....	
.....	48,290 76	.....	17,299 67	.....	60,858 00	.....	55,602 86	
.....	5,258 28	.....	.....	.....	6,445 61	.....	3,924 52	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	....	.....	.....	.....	.....	.....	.....	
.....	43,032 48	.....	17,299 67	.....	54,412 39	.....	51,678 34	

Comparative Statement of Earnings and Expenses by

	RECEIPTS.	Per Cent.	1910 February.	Per Cent.	1909 March.	Per Cent.	1910 March.
			$ c		$ c		$ c
	I. Revenue from Transportation:						
1	Freight revenue		66,668 83		87,007 88		94,279 75
2	Passenger revenue		43,545 96		44,886 99		56,286 80
3	Excess baggage revenue		381 61		314 50		611 82
4	Mail revenue		1,082 94		970 21		1,162 73
5	Express revenue		3,119 50		1,926 96		2,396 36
6	Milk revenue (on passenger trains)		2 40				4 87
7	Other passenger train revenue						
8	Switching revenue		357 35		2,113 57		413 96
9	Special service train revenue		405 00		238 60		300 00
10	Miscellaneous transportation revenue						
	Total		115,563 59		137,458 71		155,456 29
	II. Revenue from operations other than transportation:						
11	Telegraph and Telephone		2,346 40		2,757 09		2,928 78
12	Station and train privileges		310 13		166 66		250 59
13	Parcel room receipts						
14	Storage—freight		233 49		57 86		192 85
15	Storage—baggage		80 25		102 40		71 25
16	Car service demurrage		1,502 00		964 75		1,465 00
17	Rents of buildings and other property		793 89		466 67		657 13
18	Miscellaneous				32 24		15
	Total		5,266 16		4,547 67		5,565 75
	Total revenue		120,829 75		142,006 38		161,022 04
	EXPENDITURES						
i.	Maintenance of way and structures	11.5	13,989 48	8.2	11,671 48	10.	16,176 12
ii.	Maintenance of equipment	9.6	11,560 88	9.0	12,792 28	9.1	14,592 68
iii.	Traffic expenses	1.1	1,426 80	.5	778 79	.9	1,541 09
iv	Transportation expenses	42.4	51,236 17	36.1	51,140 24	31.5	50,789 30
v.	General expenses	4.8	5,756 57	2.8	4,073 67	4.	6,480 33
	Total operating expenses	69.4	83,969 90	56.6	80,456 46	55.5	89,579 52
	Balance		36,859 85		61,549 92		71,442 52
	Other Income:						
	Ore royalties		4,953 49				
	Hire of equipment						
	Total		41,813 34		61,549 92		71,442 52
	Deductions from Income:						
	Hire of equipment		2,595 94		4,202 03		4,474 77
	Outside operations						
	Interest						
	Net result		39,217 40		57,347 89		66,967 75

Months —November 1st, 1908, to October 31st, 1910.—Continued.

p.c.	1909 April.	p.c.	1910 April.	p.c.	1909 May.	p.c.	1910 May.	p.c.	1909 June.	No.
	$ c		$ c		$ c		$ c		$ c	
....	100,072 98	....	66,550 06	....	65,561 46	....	54,279 17	....	65,070 93	1
....	47,282 64	....	57,113 63	....	49,378 76	....	50,396 41	....	53,548 46	2
....	506 07	....	630 50	....	474 85	....	697 16	....	517 82	3
....	1,064 74	....	1,119 66	....	965 64	....	1,119 66	....	986 40	4
....	2,669 69	....	2,902 16	....	2,118 71	....	3,013 58	....	2,914 02	5
....	....	....	3 36	....	2 09	....	3 13	....	2 74	6
....	.....	....	.....	....	.....	....	.....	....	.....	7
....	3,055 79	....	332 00	....	2,168 68	....	464 00	....	996 12	8
....	.....	....	158 00	....	45 00	....	.....	....	.....	9
				....				....		10
....	26 00	....	.....	....	.....	....	.....	....	.....	
....	154,677 91	....	128,809 37	....	120,715 19	....	109,973 11	....	124,036 49	
....	3,925 55	....	2,714 45	....	2,754 09	....	2,631 91	....	4,376 07	11
....	166 66	....	216 66	....	166 66	....	309 81	....	166 67	12
....	.....	....	.....	....	.....	....	.....	....	.....	13
....	85 40	....	198 48	....	89 01	....	2 00	....	77 90	14
....	139 10	....	95 15	....	105 65	....	74 40	....	126 75	15
....	1,003 00	....	906 00	....	1,580 00	....	150 00	....	2,476 00	16
										17
....	1,363 17	....	722 62	....	628 33	....	465 10	....	590 16	
....	508 71	....	162 63	....	1,553 39	....	320 10	....	.....	18
...	7,191 59	....	5,015 99	....	6,877 13	....	3,953 32	....	7,813 55	
....	161,869 50	....	133,825 36	....	127,592 32	....	113,926 43	....	131,850 04	
5.8	9,419 47	18.7	25,097 28	9.9	12,904 48	20.5	23,393 77	11.3	14,844 96	i.
5.3	8,515 73	11.1	14,917 88	5.4	7,118 94	9.5	10,735 11	6.3	8,310 36	ii.
.5	858 20	.9	1,258 04	.5	660 54	1.	1,551 25	1.	1,346 05	iii.
27.8	45,070 06	32.1	42,846 51	27.3	35,578 63	37.	42,059 74	27.7	36,601 66	iv.
2.1	3,471 68	4.1	5,449 85	3.1	4,058 65	5.4	5,964 63	8.1	10,652 11	v.
41.5	67,335 14	66.9	89,569 56	46.2	60,321 24	73.4	83,704 50	54.4	71,755 14	
....	94,534 36	....	44,255 80	....	67,271 08	....	30,221 93	....	60,094 90	
....	10,952 71	....	....	....	2,705 25	....	.....	....	19,273 16	
....	.....	....	....	....	2,944 15	....	.....	....	.....	
....	105,487 07	....	44,255 80	....	72,920 48	....	30,221 93	....	79,368 06	
....	4,679 22	....	4,408 33	....	....	.. .	879 10	....	1,892 64	
....	.....	....	.....	....	.....	....	237 05	....	.....	
....	.....	....	.....	....	.....	....	.....	....	.....	
....	100,807 85	....	39,847 47	....	72,920 48	....	29,105 78	....	77,475 42	

Comparative Statement of Earnings and Expenses by

	RECEIPTS.	Per Cent.	1910 June.	Per Cent.	1909 July.	Per Cent.	1910 July.
			$ c.		$ c.		$ c.
	I. Revenue from Transportation:						
1	Freight revenue		60,514 53		76,733 21		50,332 92
2	Passenger revenue		46,391 00		58,116 26		47,997 44
3	Excess baggage revenue		534 59		333 03		342 10
4	Mail revenue		1,119 66		1,100 00		1,119 66
5	Express revenue		2,973 57		2,956 19		2,936 85
6	Milk revenue (on passenger trains)		1 90		6 32		1 57
7	Other passenger train revenue						
8	Switching revenue		606 13		1,324 92		550 99
9	Special service train revenue						324 00
10	Miscellaneous transportation revenue						
	Total		112,141 38		140,569 93		103,605 53
	II. Revenue from operations other than transportation:—						
11	Telegraph and Telephone		2,519 04		3,522 58		2,881 23
12	Station and train privileges		260 54		166 67		177 17
13	Parcel room receipts						18 40
14	Storage—freight		182 60		117 86		93 49
15	Storage—baggage		62 95		114 20		86 40
16	Car service demurrage		399 50		1,188 00		555 40
17	Rents of buildings and other property		799 27		312 21		741 60
18	Miscellaneous		53 75		119 55		35 90
	Total		4,277 65		5,541 07		4,589 59
	Total revenue		116,419 03		146,111 00		108,195 12
	EXPENDITURES.						
i.	Maintenance of way and structures	29.8	34,683 68	13.1	19,164 00	36.9	39,992 15
ii.	Maintenance of equipment	10.9	12,645 51	7.3	10,630 77	7.5	8,132 73
iii.	Traffic Expenses	.9	1,108 11	.6	919 47	1.6	1,761 84
iv.	Transportation Expenses	35.6	41,466 83	26.6	38,783 58	34.6	37,446 99
v.	General Expenses	7.	8,134 46	3.8	5,621 93	5.8	6,208 70
	Total operating expenses	84.2	98,038 59	51.4	75,119 75	86.4	93,542 41
	Balance		18,380 44		70,991 25		14,652 71
	Other Income:						
	Ore royalties				9,813 28		
	Hire of equipment						1,448 72
	Total		18,380 44		80,874 53		16,101 43
	Deductions from income:						
	Hire of equipment		2,533 16		476 07		
	Outside operations		484 43				
	Interest						
	Net result		15,362 85		80,328 46		16,101 43

Months—November 1st, 1908, to October 31st, 1910.—Continued.

Per Cent.	1909 August.	Per Cent.	1910 August.	Per Cent.	1909 September.	Per Cent.	1910 September.	
	$ c.		$ c.		$ c.		$ c.	
.....	75,861 32	.....	68,483 44	.....	86,259 94	.....	60,777 77	1
.....	55,691 60	.....	47,684 65	.....	53,452 97	.....	48,838 05	2
.....	448 22	.....	445 15	.....	581 01	.....	467 00	3
.....	1,100 00	.....	1,162 73	.....	1,051 95	.....	1,086 33	4
.....	3,734 84	.....	2,881 16	.....	3,288 91	.....	3,058 06	5
.....	.....	.....	.....	.....	4 72	.....	.....	6
.....	.....	.....	.....	.....	.....	.....	.....	7
.....	1,195 49	.....	600 94	.....	2,036 35	.....	362 00	8
.....	.....	.....	.....	.....	.....	.....	500 00	9
.....	.....	.....	.....	.....	.....	.....	.....	10
.....	138,037 15	.....	121,258 07	.....	146,675 85	.....	115,089 21	
.....	3,902 81	.....	2,246 83	.....	2,266 14	.....	2,508 04	11
.....	166 16	.....	216 66	.....	166 67	.....	216 66	12
.....	.....	.....	36 35	.....	.....	.....	16 60	13
.....	78 71	.....	78 77	.....	54 27	.....	147 20	14
.....	118 45	.....	66 77	.....	163 80	.....	66 40	15
.....	1,331 00	.....	583 00	.....	1,827 00	.....	395 00	16
.....	579 42	.....	2,495 85	.....	633 76	.....	596 98	17
.....	1,938 13	.....	86 77	.....	.....	.....	35 91	18
.....	8,115 18	.....	5,811 00	.....	5,111 64	.....	3,982 79	
.....	146,152 33	.....	127,069 07	.....	151,787 49	.....	119,072 00	
11.9	17,070 30	37.1	47,218 19	17.5	26,563 77	40.6	48,319 42	i.
8.8	12,655 44	9.5	12,111 91	5.8	8,749 91	7.	8,366 96	ii.
.7	951 15	.6	776 29	.7	1,086 10	.9	1,074 01	iii.
27.1	38,764 72	31.7	40,242 94	30.3	46,061 06	32.2	38,324 90	iv.
3.0	4,286 64	5.4	6,854 84	3.5	5,249 54	5.8	6,890 20	v.
51.5	73,728 25	84.3	107,204 17	57.8	87,710 38	86.5	102,975 49	
.....	72,424 08	.....	19,864 90	.....	64,077 11	.....	16,096 51	
.....	19,438 65	.....	.....	.....	10,000 46	.....	.....	
.....	.....	.....	.....	.....	.....	.....	5,876 05	
.....	91,862 73	.....	19,864 90	.....	74,077 57	.....	21,972 56	
.....	3,064 24	.....	973 03	.....	2,441 08	.....	.....	
.....	.....	.....	250 00	.....	.....	.....	368 43	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	88,798 49	.....	18,641 87	.....	71,636 49	.....	21,604 13	

Comparative Statement of Earnings and Expenses by

	RECEIPTS.	Per Cent.	1909 October.
	I. Revenue from Transportation:		
1	Freight revenue		101,153 93
2	Passenger revenue		52,566 53
3	Excess baggage revenue		748 46
4	Mail revenue		1,070 26
5	Express revenue		3,016 04
6	Milk revenue (on passenger trains)		4 56
7	Other passenger train revenue		
8	Switching revenue		1,159 18
9	Special service train revenue		
10	Miscellaneous transportation revenue		
	Total		159,718 96
	II. Revenue from operations other than transportation:—		
11	Telegraph and Telephone		3,683 94
12	Station and train privileges		166 66
13	Parcel room receipts		
14	Storage—freight		66 62
15	Storage—baggage		144 05
16	Car service demurrage		1,503 00
17	Rents of buildings and other property		1,749 25
18	Miscellaneous		
	Total		7,313 52
	Total revenue		167,032 48
	EXPENDITURES.		
i.	Maintenance of way and structures	35.7	59,576 46
ii.	Maintenance of equipment	5.7	9,618 41
iii.	Traffic expenses	.8	1,389 45
iv.	Transportation expenses	32.4	54,171 86
v.	General expenses	2.6	4,269 45
	Total operating expenses	77.2	129,025 63
	Balance		38,006 85
	Other Income:		
	Ore royalties		909 09
	Hire of equipment		
	Total		38,915 94
	Deductions from income:		
	Hire of equipment		1,337 82
	Outside operations		
	Interest		
	Net result		37,578 12

Months—November 1st, 1908, to October 31st, 1910. —Concluded.

Per Cent.	1910 October.	1909 Total.	1910 Total.	Increase.	Decrease.
.....	56,151 14	853,353 41	852,886 46	.....	466 95
.....	45,661 52	564,637 47	606,967 91	42,330 44	.....
.....	540 85	4,815 37	6,197 50	1,382 13	.....
.....	1,070 26	11,865 96	13,295 58	1,429 62	.....
.....	2,988 31	29,954 80	36,177 46	6,222 66	.....
.....	.....	31 58	23 67	.....	7 91
.....	.....	.....	.....	.....	.....
.....	292 00	22,964 17	4,704 47	.....	18,259 70
.....	.....	749 25	1,767 00	1,017 75	.....
.....	.....	781 92	.....	.....	781 92
.....	106,704 08	1,489,153 93	1,522,020 05	32,866 12	.....
.....	2,654 07	42,569 44	34,778 88	.....	7,790 56
.....	243 22	1,966 65	2,751 43	784 79	.....
.....	149 70	.....	221 05	221 05	.....
.....	126 58	1,108 90	2,368 27	1,259 37	.....
.....	53 55	1,253 90	1,012 32	.....	241 58
.....	429 38	16,204 75	13,980 03	.....	2,224 72
.....	758 61	10,851 03	12,585 36	1,734 33	.....
.....	414 54	6,586 69	2,134 63	.....	4,452 06
.....	4,829 65	80,541 36	69,831 97	.....	10,709 39
.....	111,533 73	1,569,695 29	1,591,852 02	22,156 73	.....
27.3	30,157 78	212,980 49	380,314 75	167,334 26	.....
8.6	9,637 16	132,015 76	137,340 46	5,324 70	.....
1.2	1,422 62	11,565 53	14,920 04	3,354 51	.....
33.9	37,910 84	512,757 31	556,740 45	43,983 14	.....
5.2	5,884 74	56,280 56	76,045 66	19,765 10	.....
76.2	85,013 14	925,599 65	1,165,361 36	239,761 71	.....
.....	26,520 59	644,095 64	426,490 66	.....	217 604 98
.....	18,504 04	172,856 98	31,762 92	.....	141,094 06
.....	7,474 07	13,463 50	7,474 07	.....	5,989 43
.....	52,498 70	830,416 12	465,727 65	.....	364,688 47
.....	.....	19,073 47	27,047 96	7,974 49	.....
.....	300 00	.....	1,639 91	1,639 91	.....
.....	909 47	.....	909 47	909 47	.....
.....	51,289 23	811,342 65	436,130 31	.....	375,212 34

Comparative Statement of Expenses by Months,

	Maintenance of Way and Structures.	1908 November.	1909 November.	1908 December.	1909 December	1909 January.
		$ c.	$ c.	$ c.	$ c.	$ c.
1	Superintendence.	312 33	589 24	376 41	714 83	384 14
2	Ballast	52 00	42 46	.....	824 56	49 72
3	Ties	73 72	6,956 75	.....	2,452 19	15 19
4	Rails	617 82	320 58	55 14	4,778 53	10 61
5	Other Track Material	398 00	400 95	17 95	2,623 94	182 93
6	Roadway and Track	6,848 42	18,099 81	3,674 51	11,220 38	1,934 11
7	Removal of Snow, Sand and Ice	219 44	394 61	2,313 51	3,060 11	4,134 05
8	Tunnels	.....	.....	.....	.....	.....
9	Bridges, Trestles and Culverts	364 91	2,465 52	351 22	1,500 22	164 03
10	Over and Under Grade Crossings	.....	.....	.....	.....	.....
11	Grade Crossings, Fences, Cattle Guards and Signs	14 73	517 09	15 97	445 00	2 18
12	Snow and Sand Fences and Snowsheds	.....	32 80	.....	5 44	.....
13	Signals and Interlocking Plants	8 49	.....	52 50	.....	.....
14	Telegraph and Telephone Lines	223 85	1,321 39	250 49	2,946 54	175 90
15	Electric Power Transmission	46 00	.....	3 20	110 00	356 46
16	Buildings, Fixtures and Grounds	800 18	5,708 02	651 98	11,725 22	541 35
17	Work Equipment Repairs (now account No. 43)	370 27	.....	187 34	.....	.....
18	Roadway Tools and Supplies	163 16	315 50	336 44	298 46	448 49
19	Injuries to Persons	.....	25 00	.....	.....	.....
20	Stationery and Printing	12 62	74 37	19 28	92 91	12 14
21	Other Expenses	22 44	.....	24 90	.....	5 81
22	Maintaining Joint Tracks, Yards and other Facilities—Dr.	.....	.....	.....	.....	.....
23	Maintaining Joint Tracks, Yards and other Facilities—Cr.	.....	.....	.....	.....	.....
23a	Insurance (1908).	1,463 03	.....	1,468 06	.....	.....
	Total	12,011 41	37,264 09	9,798 90	42,798 33	8,417 11

November 1st, 1908, to October 1st, 1910.

1910 January.	1909 February.	1910 February.	1909 March.	1910 March.	1909 April.	1910 April	1909 May.	1910 May.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
867 32	639 47	808 47	613 38	860 77	457 24	167 20	210 58	951 24
178 97	46 55	74 10	15 40	99 63	41 51	1,827 77	16 10	1,329 60
10 21	.....	23 00	4 45	*8 32	21 62	3,114 81	887 35	1,274 97
6,833 98	132 00	.....	74 07	283 38	8 72	416 95	30 37	488 57
573 49	381 11	733 02	133 58	767 46	53 14	1,192 88	47 47	1,967 69
4,769 17	2,265 53	8,079 84	5,283 67	9,980 08	7,399 80	12,765 23	9,909 35	12,872 10
5,201 45	6,277 79	4,471 53	3,440 63	1,731 95	276 39	7 56	7 85	*54 45
.....	.....	.....	.....	.....	.....	.....	.....	.....
274 10	192 77	363 89	560 49	515 36	73 94	1,507 19	246 21	624 18
6 00	*1,294 89	.....	.....	.....	.....	947 33	5 93	.....
13 95	4 55	117 77	.....	129 98	26 07	269 57	247 09	305 56
.....	152 88	.....	.....	.....	.....	.....	.....	.....
....	.....	20	8 00	.....	.....	64	.....	.....
375 39	64 22	357 12	281 40	627 20	306 93	565 14	374 02	309 12
45 40	204 36	276 00	63 70	*11 50	165 26	*3 30	68 10	135 41
1,384 82	599 43	*408 68	840 89	682 42	351 90	1,556 48	499 16	2,588 95
.....	.....	.....	.....	.....	.....	.....	.....	.....
553 34	360 41	280 34	296 42	370 66	177 19	683 19	278 66	499 39
25 00	.....	.....	.....	62 50	.....	.....	.....	.....
73 09	23 13	70 24	23 39	61 56	13 25	69 44	70 17	101 44
38 78	193 95	37 53	33 01	22 99	46 51	9 20	6 07	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
21,224 46	11,538 15	13,989 48	11,671 48	16,176 12	9,419 47	25,097 28	12,904 48	23,393 77

*Cr.

Comparative Statement of Expenses by Months,

	Maintenance of Way and Structures.	1909 June.	1910 June.	1909 July.	1910 July.	1909 August.
		$ c.	$ c.	$ c.	$ c.	$ c.
1	Superintendence	273 44	1,015 56	272 09	1,252 26	293 73
2	Ballast	3 60	2,104 65	536 19	4,220 62	670 62
3	Ties	80 45	9,309 84	173 73	7,224 65	258 20
4	Rails	192 81	*2,935 81	151 72	525 99	49 27
5	Other Track Material	121 18	*1 69	26 31	12 40	31 22
6	Roadway and Track	11,213 13	21,588 03	14,555 29	18,554 98	14,244 09
7	Removal of Snow, Sand and Ice			633 29		
8	Tunnels					
9	Bridges, Trestles and Culverts	105 03	467 57	750 59	2,213 27	81 55
10	Over and Under Grade Crossings			26 96	383 03	
11	Grade Crossings, Fences, Cattle Guards and Signs	143 75	36 98	202 97	180 10	26 20
12	Snow and Sand Fences and Snowsheds					
13	Signals and Interlocking Plants	1 80				
14	Telegraph and Telephone Lines	323 90	428 25	860 10	410 47	227 40
15	Electric Power Transmission	102 00	*1 40	48 50	*1 70	45 90
16	Buildings, Fixtures and Grounds	722 18	2,012 05	658 72	3,258 00	754 52
17	Work Equipment Repairs (now account No. 431)					
18	Roadway Tools and Supplies	1,531 59	584 25	220 02	1,088 03	190 80
19	Injuries to Persons				678 80	166 90
20	Stationery and Printing	23 35	75 40	39 97	*8 75	22 48
21	Other Expenses	6 75		7 55		7 42
22	Maintaining Joint Tracks, Yards and other Facilities—Dr					
23	Maintaining Joint Tracks, Yards and other Facilities—Cr					
23a	Insurance, 1908					
	Total	14,844 96	34,683 68	19,164 00	39,992 15	17,070 30

*Cr.

November 1st, 1909, to October 31st, 1910.

1910 August.	1909 September	1910 September	1909 October.	1910 October.	1909 Total.	1910 Total.	Increase.	Decrease.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1,345 34	482 85	1,547 73	483 03	1,592 91	4,797 69	11,712 87	6,915 18	.....
3,529 93	433 59	434 18	2,149 22	752 85	4,014 50	15,419 32	11,404 82	.....
8,220 70	101 41	7,593 91	347 60	4,942 81	1,963 72	51,115 52	49,151 80	.....
598 30	71 12	926 74	2,758 81	3,934 80	4,152 46	16,172 01	12,019 55	.....
42 80	91 68	*293 75	6 73	211 17	1,491 30	8,230 36	6,739 06	.....
27,125 65	17,133 98	32,597 20	21,109 67	15,493 43	115,571 55	193,145 90	77,574 35	.....
.....	.....	.....	3 35	.....	17,306 30	14,812 76	.....	2,493 54
.....	.....	.....	.....	.....	.....	.....	.....	.....
2,990 04	663 96	2,177 85	4,524 96	1,061 19	8,079 66	16,160 38	8,080 72	.....
.....	.....	.....	.....	.....	32 89	41 47	8 58	.....
469 29	109 34	573 38	91 56	21 49	883 91	3,080 16	2,196 25	.....
.....	.....	.....	.....	.....	.....	38 24	38 24	.....
.....	.....	.....	.....	.....	223 67	84	.....	222 83
424 69	1,286 35	332 27	11,482 32	437 67	15,856 88	8,535 27	.....	7,321 63
.....	419 69	50 85	44 48	.....	1,567 65	599 76	.....	967 89
2,120 39	5,181 34	2,045 45	15,435 83	1,376 81	27,037 48	34,049 93	7,012 45	.....
.....	.....	.....	.....	.....	557 61	.....	.....	557 61
323 69	508 34	310 31	993 82	311 09	5,505 34	5,618 25	112 91	.....
.....	.....	.....	97 00	.....	263 90	791 30	527 40	.....
27 37	74 27	23 30	43 13	21 56	377 18	681 93	304 75	.....
.....	5 85	.....	5 45	.....	365 71	108 50	.....	257 21
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	2,931 09	.....	.....	2,931 09
47,218 19	26,563 77	48,319 42	59,576 46	30,157 78	212,980 49	380,314 75	167,334 26	.....

* Cr.

Comparative Statement of Expenses by Months,

	Maintenance of Equipment.	1908 November.	1909 November.	1908 December.	1909 December	1909 January.
		$ c.	$ c.	$ c.	$ c.	$ c.
24	Superintendence	726 71	869 02	633 90	836 43	868 37
25	Steam Locomotives—Repairs	2,562 41	5,213 67	4,682 42	5,379 70	5,084 86
26	" " Renewals					
27	" " Depreciation					
28	Electric Locomotives—Repairs					
29	" " Renewals					
30	" " Depreciation					
31	Passenger Train Cars—Repairs	1,248,03	1,651 21	1,428 95	2,171 66	1,343 96
32	" " " Renewals					
33	" " " Depreciation					
34	Freight Train Cars—Repairs	2,565 10	2,690 77	924 45	2,012 74	2,174 48
35	" " " Renewals					
36	" " " Depreciation					
37	Electric Equipment of Cars—Repairs					
38	" " " Renewals					
39	" " " Depreciation					
40	Floating Equipment—Repairs					
41	" " Renewals					
42	" " Depreciation					
43	Work Equipment—Repairs (see M. of W. and S., 1908)		161 10		255 05	129 75
44	Work Equipment—Renewals					
45	" " Depreciation					
46	Shop Machinery and Tools	197 31	319 15	140 63	492 94	200 44
47	Power Plant Equipment	50 40	59 21	169 03	371 38	123 25
48	Injuries to Persons					
49	Stationery and Printing	80 62	97 25	36 07	47 91	59 64
50	Other Expenses	1,799 74	*645 33	2,289 29	*645 35	2,089 12
51	Maintaining Joint Equipment at Terminals—Dr.					
52	Maintaining Joint Equipment at Terminals—Cr					
53	Insurance	939 63		939 63		
54	Equipment Borrowed—Dr. (1908)	2,167 44		1,951 08		
55	Equipment Loaned—Cr. (1908)	287 88		*308 16		
	Total	12,049 51	10,416 05	12,887 29	10,922 46	12,073 87

* Cr.

	Traffic Expenses.	1908 Nov.	1909 Nov.	1908 Dec.	1909 Dec.	1909 Jan.
		$ c.	$ c.	$ c.	$ c.	$ c.
56	Superintendence	748 35	940 52	529 02	579 74	611 23
57	Outside Agencies					
58	Advertising	15 00	200 00	118 75	215 00	72 95
59	Traffic Associations	25 00		11 75		4 99
60	Fast Freight Lines					
61	Industrial and Immigration Bureaus					
62	Stationery and Printing	24 37	142 02	100 74	13 88	229 38
63	Other Expenses					1 65
64	Insurance	101 28		101 28		
	Total	914 00	1,282 54	861 54	808 62	920 20

November 1st, 1908, to October 31st, 1910.

1910 January.	1909 February.	1910 February.	1909 March.	1910 March.	1909 April.	1910 April.	1909 May.	1910 May.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
836 95	711 58	916 70	814 37	894 68	783 39	812 61	789 85	1,024 47
6,263 45	10,277 41	4,744 96	5,385 15	7,491 04	4,979 15	6,054 95	3,841 33	5,022 26
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
2,340 37	1,437 31	2,374 18	1,930 27	1,926 25	1,288 87	1,546 31	1,238 24	986 86
.....	.....	.....	.....	.....	.....	.....	.....	.....
2,606 80	1,663 67	1,634 33	1,767 48	2,544 74	935 51	2,245 67	1,257 54	1,389 30
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
584 17	318 41	1,299 56	175 47	1,147 54	622 68	3,628 75	382 57	2,021 09
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
447 67	259 36	476 04	442 32	341 21	435 03	366 91	158 19	333 18
131 19	86 30	74 82	126 77	91 82	36 01	63 16	52 34	7 45
25 00	.....	.....	.....	62 50	.....	.....	.....	.....
65 53	64 31	40 29	106 10	92 90	80 42	198 02	44 21	83 07
.....	1,794 90	.....	2,044 35	.....	*645 33	1 50	*645 33	*132 57
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
13,301 13	16,613 25	11,560 88	12,792 28	14,592 68	8,515 73	14,917 88	7,118 94	10,735 11

*Cr.

1910 Jan.	1909 Feb.	1910 Feb.	1909 March.	1910 March.	1909 April.	1910 April.	1909 May.	1910 May.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
728 16	677 39	677 78	571 28	693 27	610 04	748 83	515 17	701 41
25 88	.....	2 24	.....	15 30	.....	7 21	.....	3 04
140 00	126 10	592 98	44 05	734 40	171 70	329 30	45 00	747 59
.....	70	.....	15 15	.....	.....	.....	50	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	75 85	153 80	148 31	98 12	76 46	172 70	99 87	99 21
14 79	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
908 83	880 04	1,426 80	778 79	1,541 09	858 20	1,258 04	660 54	1,551 25

Comparative Statement of Expenses by Months,

Maintenance of Equipment.	1909 June.	1910 June.	1909 July.	1910 July.	1909 August.
	$ c.	$ c.	$ c.	$ c.	$ c.
24 Superintendence	1,015 30	929 65	892 72	855 50	756 53
25 Steam Locomotives—Repairs	4,722 71	5,685 03	4,318 13	6,157 93	4,343 89
26 " " Renewals					
27 " " Depreciation					
28 Electric Locomotives—Repairs					
29 " " Renewals					
30 " " Depreciation					
31 Passenger Train Cars—Repairs	1,141 45	1,520 67	1,733 27	1,957 83	4,987 46
32 " " " Renewals				*3,490 24	
33 " " " Depreciation					
34 Freight Train Cars—Repairs	1,512 57	2,035 19	1,953 93	2,266 04	1,417 46
35 " " " Renewals				*1,801 56	
36 " " " Depreciation					
37 Electric Equipment of Cars—Repairs					
38 " " " Renewals					
39 " " " Depreciation					
40 Floating Equipment—Repairs					
41 " " Renewals					
42 " " Depreciation					
43 Work Equipment—Repairs (see M. of W. and S., 1908)	340 25	1,895 55	96 44	1,506 15	48 38
44 Work Equipment—Renewals					
45 " " Depreciation					
46 Shop Machinery and Tools	109 79	494 04	145 43	519 75	183 74
47 Power Plant Equipment	84 84	8 81	34 72	70 12	34 84
48 Injuries to Persons					
49 Stationery and Printing	28 78	76 57	48 23	91 21	38 48
50 Other Expenses	* 645 33		1,407 90		846 66
51 Maintaining Joint Equipment at Terminals—Dr.					
52 Maintaining Joint Equipment at Terminals—Cr.					
53 Insurance					
54 Equipment Borrowed—Dr. (1908)					
55 Equipment Loaned—Cr. (1908)					
Total	8,310 36	12,645 51	10,630 77	8,132 73	12,655 44

*Cr.

Traffic Expenses.	1909 June.	1910 June.	1909 July.	1910 July.	1909 August.
	$ c.	$ c.	$ c.	$ c.	$ c.
56 Superintendence	739 26	790 75	821 13	973 51	791 76
57 Outside Agencies		89		20 76	
58 Advertising	474 50	232 34		673 10	17 00
59 Traffic Associations	34 19		41 00		
60 Fast Freight Lines					
61 Industrial and Immigration Bureaus					
62 Stationery and Printing	98 10	84 13	47 41	94 47	142 39
63 Other Expenses			9 93		
64 Insurance					
Total	1,346 05	1,108 11	919 47	1,761 84	951 15

November 1st, 1909, to October 31st, 1910.

1910 August.	1909 September	1910 September	1909 October.	1910 October.	1909 Total.	1910 Total.	Increase.	Decrease.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
959 56	909 85	851 26	928 43	1,054 77	9,831 00	10,841 60	1,010 60	.....
5,266 28	4,152 22	4,438 16	1,079 81	4,193 92	55,429 49	65,911 35	10,481 86	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
1,773 60	1,946 34	1,255 61	3,353 19	2,388 50	23,077 34	21,893 05	.....	1,184 29
.....	.....	.....	.....	.....	.....	*3,490 24	.....	3,490 24
1,427 82	352 72	1,341 96	1,934 56	645 62	18,459 47	22,840 98	4,381 51	.....
.....	.....	* 221 28	.....	.....	.....	*2,022 84	.....	2,022 84
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
2,051 23	127 80	428 11	304 78	929 26	2,546 53	15,907 56	13,361 03	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
515 92	201 66	269 47	853 15	353 99	3,327 05	4,930 27	1,603 22	.....
86 64	84 58	38 24	102 66	23 97	985 74	1,026 81	41 07	.....
.....	.....	.....	.....	.....	.....	87 50	87 50	.....
34 46	28 79	16 28	60 03	45 03	673 68	888 52	214 84	.....
* 3 60	945 95	* 50 85	1,001 80	2 10	12,283 72	* 1,474 10	.....	13,757 82
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	1,879 26	.....	.....	1,879 26
.....	.....	.....	.....	.....	4,118 52	.....	.....	4,118 52
.....	.....	.....	.....	.....	*596 04	.....	596 04	.....
12,111 91	8,749 91	8,366 96	9,618 41	9,637 16	132,015 76	137,340 46	5,324 70	.....

*Cr.

1910 Aug.	1909 Sept.	1910 Sept.	1909 October.	1910 October.	1909 Total.	1910 Total.	Increase.	Decrease.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
616 51	940 56	709 71	832 72	834 08	8,387 91	8,994 27	606 36	.....
27	.....	5 60	.....	.....	.....	81 19	81 19	.....
125 00	15 00	338 83	541 98	296 89	1,642 03	4,625 43	2,983 40	.....
.....	.....	.....	.....	.....	133 28	.....	.....	133 28
.....	.....	.....	.....	.....	.....	.....	.....	.....
1 00	.....	.....	.....	69 57	.....	70 57	70 57	.....
33 51	130 54	19 87	14 75	222 08	1,188 17	1,133 79	.....	54 38
.....	.....	.....	.....	.....	11 58	14 79	3 21	.....
.....	.....	.....	.....	.....	202 56	.....	.....	202 56
776 29	1,086 10	1,074 01	1,389 45	1,422 62	11,565 53	14,920 04	3,354 51	.....

Comparative Statement of Expenses by Months,

Transportation Expenses.	1908 Nov.	1909 Nov.	1908 Dec.	1909 Dec.	1909 Jan.
	$ c.	$ c.	$ c.	$ c.	$ c.
65 Superintendence	847 03	637 00	855 65	906 01	785 60
66 Dispatching Trains	202 00	503 80	196 75	166 76	554 00
67 Station Employees	3,571 20	5,916 16	3,545 15	6,106 16	3,782 68
68 Weighing and Car Service Associations	15 66	21 28	15 80	25 17	62 57
69 Coal and Ore Docks	.....	.....	.....	.....	.....
70 Station Supplies and Expenses	468 96	1,776 15	486 94	2,250 26	822 31
71 Yardmasters and their Clerks	193 50	196 50	151 00	150 00	67 00
72 Yard Conductors and Brakemen	725 01	1,714 81	973 33	1,547 86	828 06
73 Yard Switch and Signal Tenders	117 38	167 89	139 25	44 97	123 70
74 Yard Supplies and Expenses	58 98	66 77	45 94	250 42	14 73
75 Yard Enginemen	511 86	1,010 32	652 08	1,071 65	683 21
76 Enginehouse Expenses—Yard	65 96	89 45	169 86	127 68	67 67
77 Fuel for Yard Locomotives	1,023 99	2,976 33	2,049 94	3,199 43	1,914 62
78 Water for Yard Locomotives	25 20	54 25	18 35	93 19	17 91
79 Lubricants for Yard Locomotives	16 18	36 67	18 19	52 40	24 72
80 Other Supplies for Yard Locomotives	6 78	55 54	8 21	29 89	10 39
81 Operating Joint Yards & Terminals, Dr.	1,912 66	3,271 40	2,173 98	2,986 77	2,781 40
82 Operating Joint Yards & Terminals, Cr.	.....	.....	.....	.....	.....
83 Motormen	.....	.....	.....	.....	.....
84 Road Enginemen	3,536 18	5,988 74	3,838 23	5,810 58	3,642 44
85 Enginehouse Expenses—Road	732 30	1,333 12	655 41	1,407 92	911 21
86 Fuel for Road Locomotives	11,422 31	19,417 47	13,389 08	18,001 38	14,313 51
87 Water for Road Locomotives	1,121 09	779 96	1,168 25	940 08	1,499 87
88 Lubricants for Road Locomotives	169 86	298 13	193 79	491 61	189 87
89 Other Supplies for Road Locomotives	109 83	203 80	124 25	294 93	140 79
90 Operating Power Plants	136 04	.....	285 51	.....	316 37
91 Purchased Power	.....	.....	.....	.....	.....
92 Road Trainmen	3,405 79	5,757 38	3,805 09	5,463 55	3,676 26
93 Train Supplies and Expenses	943 16	1,243 31	917 13	2,466 49	1,388 90
94 Interlockers, Block and other Signals —Operations	.....	.....	.....	.....	.....
95 Crossing, Flagmen and Gatemen	.....	.....	.....	.....	.....
96 Drawbridge Operation	.....	.....	.....	.....	.....
97 Clearing Wrecks	508 69	903 66	114 67	694 77	864 17
98 Telegraph and Telephone—Operation	1,243 38	1,891 23	1,339 39	1,733 27	1,706 45
99 Operating Floating Equipment	.....	.....	.....	.....	.....
100 Express Service	.....	.....	.....	.....	.....
101 Stationery and Printing	427 45	1,069 92	535 45	1,177 81	735 76
102 Other Expenses	.....	.....	26	.....	.....
103 Loss and Damage—Freight	733 51	123 40	85 71	137 03	143 52
104 Loss and Damage—Baggage	.....	*5 00	21 56	92 00	10 25
105 Damage to Property	799 24	6 07	.....	.....	100 00
106 Damage to Stock on Right of Way	75 00	50 00	6 30	122 00	.....
107 Injuries to Persons	.....	2,565 00	60 00	176 00	1,853 10
108 Operating Joint Tracks—Dr.	.....	.....	.....	.....	.....
109 Operating Joint Tracks—Cr.	.....	.....	.....	.....	.....
110 Insurance	1,411 11	.....	1,411 11	.....	.....
	36,537 29	60,120 51	39,451 61	58,018 04	44,117 04

*Cr

November 1st, 1908, to October 31st, 1910.

1910 Jan.	1909 Feb.	1910 Feb.	1909 March.	1910 March.	1909 April.	1910 April.	1909 May.	1910 May.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
824 46	881 63	925 31	826 94	958 67	849 09	857 20	955 02	708 97
459 26	520 02	463 34	487 74	399 11	501 33	414 32	392 10	773 34
6,274 87	3,879 03	5,914 24	4,863 92	5,654 20	4,364 07	5,532 61	4,156 22	6,305 79
32 00	22 20	27 40	28 18	22 44	26 65	23 87	26 70	22 02
.....	.....	.....	.....	.....	.....	.....	.....	.....
1,579 35	1,186 93	1,124 53	1,292 90	1,157 25	671 42	1,007 69	518 00	518 75
171 00	150 00	213 00	150 00	215 00	150 00	215 00	150 00	229 99
1,707 70	836 47	1,149 35	1,280 61	1,477 53	1,098 22	1,098 59	624 85	987 85
251 07	127 80	203 44	105 36	341 71	136 07	376 14	137 15	303 90
59 57	15 33	54 83	16 36	62 21	53 93	65 60	51 75	49 78
1,015 03	680 26	740 07	1,079 61	958 43	620 44	759 32	715 04	744 47
176 29	157 55	168 85	203 62	265 32	102 78	110 93	515 55	113 75
2,307 62	2,179 07	2,449 69	2,461 15	1,836 58	1,805 80	1,678 50	1,505 74	1,496 15
83 23	103 05	102 96	275 63	117 78	200 22	77 11	83 24	62 70
68 85	19 94	59 64	.....	48 29	35 44	46 10	47 82	41 80
25 72	7 41	16 92	17 97	22 02	6 99	*175 40	9 63	16 21
2,752 82	2,528 00	2,334 11	3,166 90	2,267 59	2,660 84	2,563 53	2,784 02	2,589 73
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
5,026 50	4,329 46	4,504 93	4,385 80	4,974 48	4,412 58	3,992 48	4,061 46	3,914 16
1,578 57	1,370 00	1,538 35	1,748 60	1,898 67	1,230 40	1,168 88	1,190 21	1,259 74
19,798 63	16,945 39	17,721 71	16,505 55	17,182 85	16,052 50	13,769 94	8,058 51	13,471 31
772 30	940 24	936 25	1,351 32	1,001 57	1,146 19	873 19	613 34	707 74
410 68	325 06	305 14	270 15	323 64	205 30	240 81	191 36	244 70
238 31	138 45	202 79	124 37	97 82	108 54	84 00	105 10	87 14
.....	29 37	.....	.....	.....	156 00	.....	.....	168 63
.....	.....	.....	.....	.....	.....	.....	.....	.....
5,313 44	4,166 94	4,657 66	4,752 51	4,932 99	3,861 41	4,109 86	3,868 66	4,168 81
1,861 10	1,455 79	1,688 39	801 52	1,442 19	897 36	1,034 23	744 07	1,031 28
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
272 69	276 65	563 11	767 18	428 61	237 87	208 80	370 25	1,223 82
1,925 36	1,656 13	1,784 51	1,707 61	1,761 78	1,638 06	1,605 01	1,589 69	3 54
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
973 16	571 47	1,022 51	729 17	614 86	1,002 06	964 12	775 85	892 63
.....	188 99	.....	.....	.....	.....	.....	.....	.....
128 10	38	98 14	133 87	184 71	194 74	100 08	310 15	*236 59
115 00	.....	.....	.....	.....	.....	44 00	.....	*96 87
.....	203 97	.....	.....	.....	1,560 76	.....	8 15	.....
25 00	29 38	60 00	25 00	.....	.....	.....	3 50	.....
50 00	557 20	205 00	1,580 70	141 00	*917 00	.....	1,015 00	254 50
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
56,277 68	46,479 56	51,236 17	51,140 24	50,789 30	45,070 06	42,846 51	35,578 63	42,059 74

*Cr.

Comparative Statement of Expenses by Months

Transportation Expenses.	1909 June.	1910 June.	1909 July.	1910 July.	1909 August.
	$ c.	$ c.	$ c.	$ c.	$ c.
65 Superintendence	958 60	743 50	748 31	493 75	970 91
66 Dispatching Trains	278 61	566 85	*99 05	664 35	413 82
67 Station Employees	4,464 77	6,398 58	5,578 85	6,162 57	4,455 76
68 Weighing and Car Service Associations	20 19	19 63	20 51	20 40	19 65
69 Coal and Ore Docks					
70 Station Supplies and Expenses	331 36	576 23	423 67	171 72	377 56
71 Yardmasters and their Clerks	150 00	178 00	363 16	185 00	150 00
72 Yard Conductors and Brakemen	960 82	1,007 11	939 83	884 73	812 40
73 Yard Switch and Signal Tenders	125 52	328 54	156 34	342 82	171 78
74 Yard Supplies and Expenses	61 02	54 55	95 12	50 14	72 58
75 Yard Enginemen	564 58	705 51	585 67	695 05	591 94
76 Enginehouse Expenses—Yard	91 36	186 23	69 07	214 01	48 78
77 Fuel for Yard Locomotives	1,161 78	1,343 57	1,241 28	1,190 02	1,415 05
78 Water for Yard Locomotives	49 69	60 91	60 15	66 99	56 28
79 Lubricants for Yard Locomotives	44 35	*8 52	35 19	40 61	37 24
80 Other Supplies for Yard Locomotives	5 74	23 00		11 62	7 47
81 Operating Joint Yards & Terminals, Dr.	2,498 96	2,499 43	2,344 19	2,044 23	2,479 25
82 Operating Joint Yards & Terminals, Cr.				*4 00	
83 Motormen					
84 Road Enginemen	4,163 08	4,308 06	4,362 25	4,228 67	4,487 63
85 Enginehouse Expenses—Road	1,144 45	897 47	1,010 86	912 18	1,047 10
86 Fuel for Road Locomotives	10,022 88	12,979 24	12,289 95	12,872 76	11,572 57
87 Water for Road Locomotives	574 60	754 29	661 80	950 50	681 83
88 Lubricants for Road Locomotives	231 05	72 72	268 18	241 74	300 51
89 Other Supplies for Road Locomotives	93 92	107 23	93 80	57 23	140 26
90 Operating Power Plants				25 33	
91 Purchased Power					
92 Road Trainmen	4,122 52	4,323 04	4,380 53	4,066 88	4,550 93
93 Train Supplies and Expenses	945 68	1,230 66	1,182 19	975 32	894 84
94 Interlockers, Block & Other Signals—Operations					
95 Crossing, Flagmen and Gatemen					
96 Drawbridge Operation					
97 Clearing Wrecks	443 93	105 35	26 46	227 06	*70 10
98 Telegraph & Telephone—Operation	1,440 76	8 05	576 21	6 66	1,465 64
99 Operating Floating Equipment					
100 Express Service					
101 Stationery and Printing	741 63	719 58	849 73	808 23	1,130 93
102 Other Expenses			3 25	*26 01	386 00
103 Loss and Damage—Freight	317 65	352 49	252 56	383 58	203 71
104 Loss and Damage—Baggage	81 20	3 03		17 01	16 30
105 Damage to Property	500 00		61 02		
106 Damage to Stock on Right of Way	3 46	50 00	50 00	65 00	
107 Injuries to Persons	7 50	872 50	152 50	*1,599 16	*123 90
108 Operating Joint Tracks—Dr.					
109 Operating Joint Tracks—Cr.					
110 Insurance					
	36,601 66	41,466 83	38,783 58	37,446 99	38,764 72

*Cr.

November 1st, 1908, to October 31st, 1910.

1910 Aug.	1909 Sept.	1910 Sept.	1909 October.	1910 October.	1909 Total.	1910 Total.	Increase.	Decrease.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
984 67	915 26	714 21	808 45	703 09	10,402 49	9,456 84	.....	945 65
690 44	330 75	652 50	543 74	611 54	4,321 81	6,365 61	2,043 80	.....
5,889 81	4,296 54	6,205 58	4,871 18	6,192 97	51,829 37	72,553 54	20,724 17	.....
21 28	22 33	15 70	29 82	14 58	310 26	265 77	.....	44 49
.....	.....	.....	.....	.....	.....	.....	.....	.....
309 50	638 95	630 07	1,007 24	724 54	8,226 24	11,826 04	3,599 80	.....
185 00	32 88	185 00	213 00	185 00	2,004 54	2,308 49	303 95	.....
948 68	159 00	902 93	1,406 74	1,219 78	10,645 34	14,646 92	4,001 58	.....
330 52	1,140 45	.....	189 15	23 70	2,669 95	2,714 70	44 75	.....
50 93	269 57	57 67	118 40	4 75	873 71	827 22	.....	46 49
702 28	745 56	668 87	938 02	706 86	8,368 27	9,082 81	714 54	.....
198 73	120 66	208 84	110 00	268 58	1,722 86	2,823 71	1,100 85	.....
1,402 51	2,285 94	1,087 87	2,929 23	1,193 12	21,973 59	22,161 39	187 80	.....
22 58	196 74	74 61	133 95	59 33	1,220 41	875 64	.....	344 77
.....	33 26	36 44	41 30	37 69	353 63	459 97	106 34	.....
7 90	42 13	12 61	26 06	12 23	148 78	58 26	.....	90 52
2,493 27	2,473 12	2,189 70	2,735 45	2,232 73	30,538 77	30,225 31	.....	313 46
.....	.....	.....	.....	.....	.....	* 4 00	.....	4 00
.....	.....	.....	.....	.....	.....	.....	.....	.....
4,600 58	5,142 13	4,078 41	5,609 57	3,665 63	51,970 81	55,093 22	3,122 41	.....
773 76	1,254 14	848 69	1,142 68	929 62	13,437 36	14,546 97	1,109 61	.....
13,858 63	15,237 50	12,421 82	17,668 51	10,502 04	163,478 26	181,997 78	18,519 52	.....
762 94	947 34	648 76	942 57	622 06	11,648 94	9,749 64	.....	1,899 30
258 17	249 23	227 11	285 92	210 69	2,880 28	3,325 14	444 86	.....
78 78	138 98	52 40	213 82	70 29	1,532 11	1,574 72	42 61	.....
.....	.....	.....	6 85	.....	930 14	193 96	.....	736 18
.....	.....	.....	.....	.....	.....	.....	.....	.....
4,366 70	5,385 66	4,117 98	5,545 82	4,539 82	51,522 12	55,818 11	4,295 99	.....
746 22	1,214 49	1,295 93	1,666 33	2,026 11	13,051 46	17,041 23	3,989 77	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
229 50	* 254 97	173 56	510 95	92 80	3,795 75	5,123 73	1,327 98	.....
12 83	1,658 94	42 15	1,780 10	5 63	17,802 36	10,780 02	.....	7,022 34
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
657 78	818 12	545 25	1,488 86	647 37	9,806 48	10,093 22	286 74	.....
.....	.....	.....	.....	26 01	578 50	.....	.....	578 50
* 407 29	* 41 57	203 26	67 43	322 28	2,401 66	1,389 19	.....	1,012 47
1 65	.....	26 98	.....	10 00	129 31	207 80	78 49	.....
.....	180 00	.....	.....	.....	3,413 14	6 07	.....	3,407 07
40 00	323 93	.....	209 72	50 00	726 29	462 00	.....	264 29
24 59	104 00	.....	931 00	.....	5,220 10	2,689 43	.....	2,530 67
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	2,822 22	.....	.....	2,822 22
40,242 94	46,061 06	38,324 90	54,171 86	37,910 84	512,757 31	556,740 45	43,983 14	.....

*Cr.

Comparative Statement of Expenses by Months,

General Expenses.	1908 Nov.	1909 Nov.	1908 Dec.	1909 Dec.	1909 Jan.
	$ c.	$ c.	$ c.	$ c.	$ c.
111 Salaries and Expenses of General Officers	259 17	1,207 46	347 52	2,333 51	802 61
112 Salaries and Expenses of Clerks and Attendants	* 883 54	1,775 63	1,209 07	2,460 68	1,256 00
113 General Office Supplies and Expenses.	114 43	708 59	186 44	441 07	189 89
114 Law Expenses	150 00	400 00	150 00	551 36	417 61
115 Insurance	2,169 96	1,202 90	2,169 96	1,562 87	1,595 31
116 Relief Department Expenses					
117 Pensions					
118 Stationery and Printing	61 40	282 45	103 90	115 85	89 09
119 Other Expenses	211 37		41 54	* 27	16 45
120 General Administration, Joint Tracks, Yards and Terminals—Dr.					
121 General Administration, Joint Tracks, Yards and Terminals—Cr.					
Total	2,082 79	5,577 03	4,208 43	7,465 07	4,366 96

*Cr.

Comparative Statement of Expenses by Months,

General Expenses.	1909 June.	1910 June.	1909 July.	1910 July.	1909 August.
	$ c.	$ c.	$ c.	$ c.	$ c.
111 Salaries and Expenses of General Officers	1,950 85	2,218 38	783 37	1,085 42	895 07
112 Salaries and Expenses of Clerks and Attendants	1,147 14	2,450 69	1,283 19	1,980 81	1,319 86
113 General Office Supplies and Expenses.	472 13	498 79	187 49	398 83	174 62
114 Law Expenses	266 67	563 11	266 67	408 00	266 67
115 Insurance	6,678 93	1,865 61	3,065 03	2,080 36	1,258 34
116 Relief Department Expenses					
117 Pensions					
118 Stationery and Printing	135 64	513 82	35 33	255 28	328 08
119 Other Expenses	75	24 06	85		44 00
120 General Administration, Joint Tracks, Yards and Terminals—Dr.					
121 General Administration, Joint Tracks, Yards and Terminals—Cr.					
Total	10,652 11	8,134 46	5,621 93	6,208 70	4,286 64

*Cr.

November 1st, 1909, to October 31st, 1910.

1910 January.	1909 February.	1910 February.	1909 March.	1910 March.	1909 April.	1910 April.	1909 May.	1910 May.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1,113 06	765 08	1,116 84	1,246 58	2,204 51	883 53	1,075 21	808 11	1,170 92
1,715 44	1,298 81	1,568 85	1,281 28	1,503 98	1,272 58	1,690 95	1,281 63	1,887 29
565 76	355 39	655 81	518 91	384 07	207 89	348 33	166 27	325 52
400 00	266 66	390 00	123 69	662 21	266 67	465 00	266 67	415 00
1,323 45	1,120 75	1,737 52	869 07	1,426 83	786 54	1,724 36	1,234 76	1,920 86
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
160 72	39 77	192 18	4 94	63 11	27 22	145 73	301 21	245 59
100 81	92 25	95 37	29 20	235 62	27 25	27	.....	* 55
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
5,379 24	3,938 71	5,756 57	4,073 67	6,480 33	3,471 68	5,449 85	4,058 65	5,964 63

*Cr.

November 1st, 1908, to October 31st, 1910.

1910 August.	1909 September	1910 September	1909 October.	1910 October.	1909 Total.	1910 Total.	Increase.	Decrease.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1,166 73	1,692 40	2,230 51	916 83	1,060 94	11,351 12	17,983 49	6,632 37	.....
2,633 61	1,399 60	1,958 63	1,528 22	1,920 24	13,393 84	23,546 80	10,152 96	.....
354 31	442 90	363 51	586 76	554 59	3,603 12	5,599 18	1,996 06	.....
500 00	367 51	485 65	276 67	500 00	3,085 49	5,740 33	2,654 84	.....
2,181 36	1,318 09	1,833 36	754 90	1,833 36	23,021 64	20,692 84	.....	2,328 80
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
18 83	29 04	5 69	206 07	13 34	1,361 69	2,012 59	650 90	.....
.....	.....	12 85	.....	2 27	463 66	470 43	6 77	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
6,854 84	5,249 54	6,890 20	4,269 45	5,884 74	56,280 56	76,045 66	19,765 10	.....

*Cr.

TOWNSITE ACCOUNTS.

Statement of Lots Sold—Townsites.—Nov. 1st, 1909, to Oct. 31st, 1910.

Townsite.	Lots sold.	Amount paid.	Balance due.
Temagami	10	$201 25	$383 75
Englehart	4	200 00	80 00
Latchford	10	800 00	.....
Matheson	6	677 50	82 50
Cochrane	107	5,164 50	4,520 50
Total	137	$7,043 25	$5,066 75

Statement Receipts and Expenditures—Townsite Accounts.

DEBIT.		CREDIT.	
Cash in bank November 1st, 1909	$14,821 05	Cash in Bank of Ottawa, October 31st, 1910	$37,200 53
Lots sold, cash paid as per statem'nt	7,043 25		
Deferred payments received	13,766 37		
Interest and other receipts	1,151 76		
Interest on deposits, Bank of Ottawa	418 10		
Total	$37,200 53	Total	$37,200 53

Statement of Land Purchased by T. & N. O. Railway. January 1st, 1909 to October 31st, 1910.

C. C. Farr, Haileybury, Lots Nos. 222-223, Ussher Ave., Haileybury	$500 00
W. O. McCarthy, N. ½ Lot 6, Con. 6, Armstrong, 38.84 acres	194 20
Christopher Miller, Renfrew, Ont., S. ½ Lot 1, Con. 5, Otto, 160.45 acres	2,000 00
B. Willison, Part N. ½ Lot 11, Con. 3, Calvert, 31.2 acres at $5.00	156 00
Provincial Treasurer,—Sesekinika, Lot 1, Con. 9, Maisonville, .69 acres	5 00
Geo. W. Jardine, Thornloe, Ont., S. ½ Lot 1, Con. 1, Armstrong, .69 acres	100 00
M. Brennan, North Bay, Ont., Lot No. 318 on Railway St. North Bay	450 00
W. D. Parks, North Bay, Ont., Lot No. 317 with house, shed and stable, large double lot on Railway St., Lot. No. 45 with a dwelling house on it, 46, 47 and 48 vacant, North Bay	5,000 00
Mrs. Amelia Parks, North Bay, Ont., Lots Nos. 50, 51 and 52, Park St., North Bay	500 00
Dominic Palladino, North Bay, Ont., Lot No. 49, house and store, North Bay	2,200 00
Wm. Martin, Sr., North Bay, Ont., Block B., Railway St., house and shed, North Bay	2,600 00
K. Farah, New Liskeard, Ont., S. ½ Lot 12, Con. 5, Dack, 4.4 acres	250 00
John Sharpe, Mileage 111, Lot 8, Con. 6, Bucke, ½ acre	90 00
Robert Moffat, Charlton, Parcel No. 7697, N. ½ Lot 12, Con. 4, Dack, 4.6 acres, and Parcel No. 7698, N. ½ Lot 12, Con. 4, Dack, 4.07 acres	100 00
Phillip C. Burgess, Fenelon Falls, Ont., N. ½ Lot 5, Con. 4, Clergue, 3.32 acres	9 96
Chas. A. Deeks, Widdifield, Ont. Part of Lot 5, Con. 2, Widdifield, .16 acres	10 00
S. Briden, Right of Way re Haileybury Spur, 2.5 acres	500 00

Treasurer of Ontario, Extra Land for Section Houses:—

Part S.	½,	Lot	12,	Con.	5,	Calvert	1.16 acre
" "	½	"	11	"	5	"	1. "
" "	½	"	12	"	5,	Dack	4.4 "
		"	9	"	1,	Benoit	3. "
" "	½	"	4	"	5,	Newmarket	1.84 "
" "	½	"	12	"	2,	Brower	1.84 "
" N	½	"	10	"	6,	Clergue	1.84 "
		"	3	"	3,	Stewart	2.24 "
							17.32 " 17 32

Nipissing Mining Co., Ltd., land for Cobalt freight shed	10,000 00
Roy Little, Lots 71, 72, 73, Haileybury, Township Bucke, .09 acres	1,600 00
Provincial Treasurer, Kenogami Station ground, 13.3 acres	13 30
" " Dane Station grounds, 5.5 acres	2 75
" " Township of Dane, 346.97 acres	173 48
Provincial Treasurer, Diver Station Grounds, 11.1 acres	11 10
Mrs. Janet Searson, North Bay, Ont., Lot 320 and house on same, Railway St., North Bay	2,450 00
A. Ferland, New Liskeard, Ont., Part Lot B., Haileybury, Bucke, .007 acres	50 00
Col. T. H. Greenwood, S. ½ Lot 2, Con. 6, Dack	450 00
Treasurer of Ontario, N. ½ Lot 12, Con. 2, Cook, 2.04 acres	2 04
A. Ferland, Haileybury, Block "A," Town of Haileybury	300 00
Chas. Sody, Toronto, Ont., S. ½ Lot 11, Con. 6, Calvert, 2.5 acres	25 00
Alex. Moore, North Bay, Ont., Lot No. 311 and house, North Bay, Ont.	3,500 00

Treasurer of Ontario, Township of Coleman ..... 1.84 acres
Mileage 85½ ..... 5.14 "
6.98 " 6 98

James Biers, North Bay, Ont., House and Lot (319) on Railway St., North Bay.	2,500 00
Chas. Schoepflin, Buffalo, N.Y., 4.68 acres on Mining Claim T. C. 61, including the water power thereon	200 00
John Ferguson, North Bay, Ont., Lots 9, 10, 11, 12 and 13 Leask Ave. as shown on plan sub-division Lot 20, Con. D, Township of Widdifield, Lots 9 and 10, being on south side of Leask Ave; Lots 11, 12 and 13 on north side. Also lots 1-14, inclusive, on Howser Ave. shown on plan of sub-division of part of Lot 20, Con. D., Township of Widdifield	3,000 00
Treasurer of Ontario, N ½ Lot 10, Con. 2, Calvert, 2.56 acres	2 56
" " " Right of Way, Temagami Reserve, M.P. 60 and 61, 3 acres	3 00
" " " " " " M.P. 48-51, 5.03 acres.	5 03

C. C. Farr, Haileybury, Ont., S. ½ Lot 12, Con. 4, Bucke, 1.53 acres	$30 00
" " " " Lots 61, 65-6-7-8-9, 70 and 74, *re* Haileybury Spur, .245 acres	1,325 00
James Hurd, Part Lot 11, Con. 4, Bucke, 8.89 acres	25 00
Treasurer of Ontario, Location M. 89½, 1.5 acres	1 50
Clara Matilda Wright, N ½ Lot 10, Con. 3, Calvert, 6.32 acres	30 00
L. W. Henderson, S. ½ Lot 5, Con. 3, Evanturel, 2.7 acres	25 00
Ben Wilson, N. ½ Lot 11, Con. 3, Calvert, 5.7 acres	60 00
C. C. Farr, Haileybury, Ont., Lots 195-6-7-8-9, 200-1-2-3-4-5-6-7-8, 210, 215, 216 and 209, Haileybury, .41 acres	800 00
Morgan R. Cartwright, Haileybury, Lot B., Haileybury (Parcels No. 8551 and 6264), .11 acres	1,500 00
K. Farah, New Liskeard, Ont., Part Lot B., Haileybury, .059 acres	1,000 00
Mrs. Mary Ferguson, S. ½ Lot 4, Con. 2, Evanturel, 1.1 acres	50 00
Wm. Bush, Uno Park, Ont., N. ½ Lot 1, Con. 1, Harley, 1.9 acres	60 00
T. J. Sword, N. ½ Lot 6, Con. 4, Evanturel, 4.42 acres	20 00
Charles E. Eagan, Haileybury, Ont., *re* Haileybury Spur, .231 acres	3,000 00
Treasurer of Ontario, N. ½ Lot 11, Con. 4, Calvert, 6.47 acres	6 47
W. Monohan, S. ½ Lot 6, Con. 1, Carr	10 00
S. Brown, S. ½ Lot 2, Con. 6, Bowman	25 00
John Sewell, Markham, Ont., S. ½ Lot 1, Con. 1, Harley, 9 acres	275 00
Treasurer of Ontario, Location—Mileage, 113 to Cochrane	2,541 55
A. O. Laing, North Bay, Ont., N. ½ Lot 10, Con. 1, Calvert, 154 acres	480 00
	$50,242 84

Statement of Land Purchased by T. & N. O. Railway for Ballast Pits, January 1st, 1909—October 31st, 1910.

Provincial Treasurer, Temagami Forest Reserve, 13 acres	
" " North of Doherty Station grounds, 1.35 acres	1 35
" " Lot 5, Con. 1, Stewart, 6.8 acres	6 80
" " Lot 5, Con. 5, Merrick, 15.5 acres	15 50
" " S. ½ Lot 10, Con. 3, Calvert, 15.5 acres	15 50
G. L. Brewer, Cobalt, Ont., Part Lot 9, Con. 4, Coleman (Mining Claim No. 614), 1.8 acres	25 00
J. H. Smering, Part Lot 10, Con. 4, Coleman (Mining Claim No. 856), 10.9 acres	210 00
Chas. Schoepflin, Cobalt, Ont., Part Lot 10, Con. 5, Coleman, (Mining Claim No. 730), 9.5 acres	200 00
C. B. Sutherland, Toronto, Ont., Part Lot 10, Con. 4, Coleman, (Mining Claim No. 779), 3.8 acres	65 00
Alex. Carby, Cobalt, Ont.— Part Lot 10, Con. 4, Coleman, (Mining Claim 696) 12.4 acres..... " 10, " 4, " " " 626 20. "	325 00
Treasurer of Ontario, Mileage 83, Gillies Limited, 27.4 acres	27 40
William Milne, S. ½ Lot 11, Con. 6, Widdifield, .31 acres	10 00
Thos. Madden N. ½ Lot 11, Con. 6, Widdifield, 2.4 acres	50 00
Treasurer of Ontario, extra land required M. P. 59, 21.5 acres	21 50
Mrs. E. E. Strothers, S. ½ Lot 11, Con. 4, Calvert, 77 acres	750 00
	$1,736 05

Tonnage Statistics

Commodities.	Freight originating on this road.	Freight received from foreign roads.	Total Tonnage.	
	Whole tons.	Whole tons	Whole tons.	Per cent.
Merchandise	7,578	9,052	16,630	2.661
Grain	3,312	6,141	9,453	1.513
Flour	736	5,338	6,074	.972
Mill feed	591	235	826	.132
Lumber	51,498	11,809	63,307	10.132
Logs	96,101	.....	96,101	15.381
Lath and shingles	353	35	388	.062
Square timber	1,251	.....	1,251	.200
Other forest products	20,164	410	20,574	3.293
Cordwood, slabs and edgings	1,616	156	1,772	.284
Pulpwood	38,387	.....	38,387	6.144
Coal—Bituminous	.....	167,017	167,017	26.730
Coal—Anthracite	9,721	2,196	11,917	1.907
Cement, brick and lime	5,262	15,837	21,099	3.377
Sand and gravel	5,979	151	6,130	.982
Silver ore	35,253	142	35,395	5.665
Iron pyrites and minerals	3,328	.....	3,328	.533
Other ores	4,189	294	4,483	.717
Live stock	4,029	3,521	7,550	1.208
Dressed meats	400	4,685	5,085	.814
Hay	3,025	10,189	13,214	2.115
Butter, cheese and eggs	190	552	742	.118
Agricultural imp. and machinery	1,443	3,262	4,705	.753
Household goods and furniture	892	1,150	2,042	.327
Settlers' effects	426	2,004	2,430	.389
Railway equipment	3,812	4,764	8,576	1.372
Manufactured goods	7,050	25,938	32,988	5.280
Steel rails	3,555	7,623	11,178	1.789
Oils	1,753	2,629	4,382	.701
Wines, liquors and beer	3,080	1,087	4,167	.667
Potatoes	1,362	4,387	5,749	.920
Fruit and vegetables	203	1,463	1,666	.267
Iron and steel	1,243	3,199	4,442	.711
All others	4,707	7,065	11,772	1.884
Total	322,489	302,331	624,820	100.000

Tons One Mile—November 1st, 1909, to October 31st, 1910.

Month.	Total Tons.	Tons, North Bound.	Tons, South Bound.	Tons, One Mile.
November 1909	74,339	46,568	27,771	6,474,933
December "	67,297	42,576	24,721	5,833,153
January 1910	52,296	28,350	23,946	4,796,006
February "	48,295	28,278	20,017	4,491,332
March "	67,199	39,644	27,555	5,898,552
April "	45,581	17,580	28,001	3,863,602
May "	51,485	34,859	16,626	3,153,831
June "	52,205	26,665	25,540	3,725,888
July "	39,949	20,805	19,144	2,879,117
August "	50,226	30,403	19,823	4,512,957
September "	38,003	21,283	16,720	3,990,995
October "	37,945	19,349	18,596	3,956,395
Total	624,820	356,360	268,460	53,576,761

Traffic and Mileage Statistics.

Passenger Traffic.

1.	Number of passengers carried earning revenue	670,913
2.	" " " one mile	24,310,826
3.	" " " " per mile of road	93,503
4.	Average distance carried (miles)	36.24
5.	Total passenger revenue	$606,967 91
6.	Average amount received from each passenger (cents)	90.4
7.	" " " " " " per mile of road (cents)	2.49
8.	Total passenger earnings	$664,429 12
9.	Passenger earnings, per mile of road	$2,554 90
10.	Passenger earnings per train mile	$3 03

Freight Traffic.

11.	Number of tons carried of freight earning revenue	624,820
12.	" " " one mile	53,576,761
13.	" " " " per mile of road	206,064
14.	Average distance haul of one ton (miles)	85.71
15.	Total freight revenue	$852,886 46
16.	Average amount received for each ton of freight	$13 65
17.	" receipts per ton per mile (cents)	1.59
18.	Freight earnings per mile of road	$3,280 33
19.	Freight earnings per train mile	$1 66

Total Traffic.

20.	Gross earnings from operation	$1,591,852 02
21.	Gross earnings from operation per mile of road	$6,122 51
22.	Gross earnings from operation per train mile	$2 24
23.	Operating expenses	$1,165,361 36
24.	Operating expenses per mile of road	$4,482 16
25.	Operating expenses per train mile	$1 64
26.	Income from operation	$426,490 66
27.	Income from operation per mile of road	$1,640 35

Car Mileage.

28.	Mileage of passenger cars	1,984,435
29.	Average number of passsengers per car mile	.12
30.	Average number of passengers per train mile	.65
31.	Average number of passenger cars per train mile	5.33
32.	Mileage of loaded freight cars—north and east	2,348,559
33.	Mileage of loaded freight cars—south and west	906,311
34.	Mileage of empty freight cars—north and east	230,661
35.	Mileage of empty freight cars—south and west	1,630,599
36.	Average number of freight cars per train mile	15.38
37.	Average number of loaded cars per train mile	9.78
38.	Average number of empty cars per train mile	5.6
39.	Average number of tons of freight per train mile	161
40.	Average number of tons of freight per loaded car mile	16.46
41.	Average mileage operated during year	260

Train Mileage.

42.	Mileage of revenue passenger trains	375,023
43.	Mileage of revenue mixed trains	Nil.
44.	Mileage of revenue freight trains	332,746
45.	Total revenue train mileage	707,769

Average Wages November 1st, 1909, to October 31st, 1910.

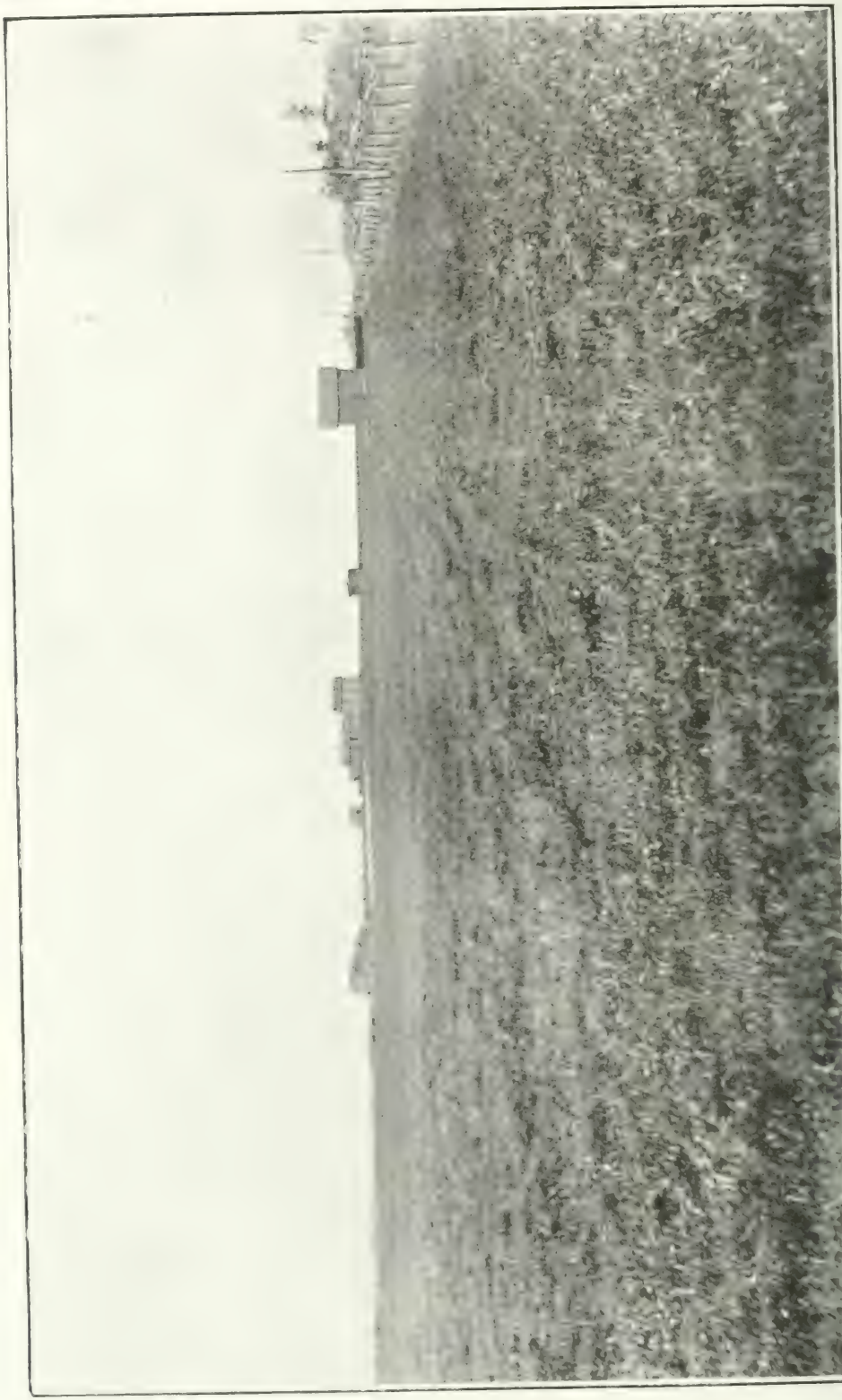
Class.	No.	Total days worked.	Total compensation.	Average daily compensation.
General Officers	12	4,350	$24,526 66	$5 64
Other Officers	11	3,967	13,334 28	3 36
General Office Clerks	66	21,082	38,856 72	1 84
Station Agents	27	8,436	22,806 24	2 70
Other Station Men	78	26,438	46,729 54	1 77
Enginemen	32	12,870	48,045 94	3 73
Firemen	31	12,842	29,701 01	2 31
Conductors	28	12,172	35,962 10	2 94
Other Trainmen	56	25,436	49,215 75	1 94
Machinists	20	6,254	19,417 54	3 11
Carpenters	28	9,482	24,043 32	2 54
Other Shopmen	129	36,400	68,228 33	1 87
Track Foremen	53	18,503	48,771 92	2 64
Other Trackmen	416	155,788	277,305 49	1 80
Switch Tenders, etc	1	504	1,201 93	2 39
Operators and Dispatchers	24	8,104	21,385 44	2 64
All Others	31	14,339	25,069 61	1 75
			$794,601 82	
Construction Pay Rolls			83,590 25	
Total			$878,192 07	

Equipment owned by Temiskaming and Northern Ontario Railway October 31st, 1910.

	Total authorized equipment.	Available for service.	Destroyed or transferred to other classes.	Capacity. Tractive Power. Pounds.	Valuation.	Total valuation carried in general ledger.
					$ c.	$ c.
STEAM LOCOMOTIVES.						
Class A 3	4	4	.....	56,320	.....	.....
Class C 2	2	2	.....	26,488	.....	.....
Class C 3	30	30	.....	704,220	.....	.....
Total	36	36	.....	787,028	.....	574,330 43
PASSENGER EQUIPMENT.						
Passenger, 1st Class	14	14	}	.....	275,583 61	.....
Passenger, 2nd Class	21	21				
Baggage and Mail	4	4	.....	}	66,630 24	.....
Baggage and Express	7	7	.....			
Mail and Express	2	1	1			
Private	3	3	.....	.....	37,824 44	.....
Total	51	50	1	.....	.....	380,038 29
FREIGHT EQUIPMENT.						
Box	150	147	3	.....	179,602 15	.....
Stock	10	10	.....	.....	8,989 20	.....
Vans	20	19	1	.....	32,785 72	.....
Flats	498	485	13	.....	405,197 33	.....
Total	678	661	17	.....	.....	626,574 40
MAINTENANCE OF WAY AND STRUCTURES EQUIPMENT.						
Pile Driver	1	1	.....	.....	11,772 35	.....
Snow Plows	4	3	1	.....	19,310 20	.....
Flangers	3	3	.....	.....	4,505 21	.....
Hand Cars	99	} 144	3	.....	6,678 97	.....
Push Cars	32					
Motor Car	1					
Velocipedes	15					
Steam Shovels	2	2	.....	.....	17,249 63	.....
Wrecking Cranes	2	2	.....	.....	29,678 00	.....
Auxiliaries	2	2	.....	.....	4,565 67	.....
Ledgerwood Ballast Unloaders	2	2	}	.....	25,626 65	.....
Side Ballast Plows	3	3				
Jordan Ballast Spreader	1	1				
Mahoney Ditching Machine	1	1				
Centre Ballast Plows	2	2				
Cinder Cars	12	12	.....	.....	18,472 32	.....
Total	182	178	4	.....	.....	137,859 00
Total Valuation of Equipment						$1,718,802 12

Statement of Earnings and Expenses, Net Earnings and Earnings and Expenses per Mile.

Average.	Average miles operated.	Earnings.	Expenses.	Net earnings.	Operation ratio per cent.
		$ c.	$ c.	$ c.	
1905	113	253,720 55	139,772 50	113,948 05	55
1906	120	544,018 85	362,492 58	181,526 27	66
1907	139	853,520 01	645,412 29	208,107 72	75.6
1908	191	973,065 61	688,397 43	284,668 18	70.8
1909 (10 months)	260	1,361,224 88	794,796 88	566,428 00	58.4
1910	260	1,591,852 02	1,165,361 36	426,490 66	73.2
Per Mile Operated.					
1905	113	2,245 31	1,236 92	1,008 39	55
1906	120	4,533 49	3,020 77	1,512 72	66
1907	139	6,140 43	4,643 25	1,497 18	75.6
1908	191	5,094 58	3,604 17	1,490 41	70.8
1909 (10 months)	260	5,235 48	3,056 91	2,178 57	58.4
1910	260	6,122 51	4,482 16	1,640 35	73.2



Clearance on Slade's Farm, New Liskeard.

MEMORANDUM OF AGREEMENT made this 29th day of April, in the year of our Lord one thousand nine hundred and ten.

BETWEEN:

THE ALGOMA STEEL COMPANY, LIMITED, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. The Contractor agrees to furnish and deliver to the Commission free of all charges on board cars on the tracks of the Commission's railway at North Bay as hereinafter specified 1883 tons of eighty pound steel rails consisting of Bessemer and Open Hearth rails in the proportions as made by the mill, that is to say, about two-thirds Bessemer, and one-third Open Hearth, in strict compliance with the specifications hereto attached save so far as such specifications are modified by these presents for the price of $32.25 per gross ton of 2240 pounds, f.o.b. cars at North Bay.

2. The said steel rails shall be so delivered between the 15th of June and the 30th June, 1910, time being agreed to be strictly of the essence of this contract.

3. In the event of stoppage or partial stoppage of the works of the Contractor or of shipments being delayed through strikes, accidents, breakage of machinery or other cause beyond the Contractor's control (of which the Commission shall be promptly notified) or in case of any shipment or any part thereof shall be lost in transit the Contractor shall be entitled to such additional time in respect of the whole or any part of said steel rails as the Chief Engineer of the Commission for the time being shall decide and certify in writing to be fair and reasonable having reference to the character and duration of such stoppage, delay or loss, and such Engineer shall be the sole and final judge as to the additional time to be allowed and as to what part of said steel rails same shall extend, and his decision in every case shall be absolutely final and binding upon both parties. The last preceding clause of these presents shall be construed so far as relates to any portion of said steel rails affected by such extension of time as if the time fixed by the Engineer were the time fixed in said clause.

4. The Contractor shall give written notice to the Commission at its office in Toronto of the commencement of rolling at least eight days in advance of such commencement, and shall similarly give written notice to the Commission at its office in Toronto of the resuming of the work after its temporary suspension at least two clear days before such resuming.

5. The written certificate of the Inspector of the Commission provided for by said specifications certifying that the rails have been manufactured to his satisfaction in accordance with this contract, and the said specifications shall be a condition precedent to the right of the Contractor to receive and be paid the price herein agreed to be paid for the same.

6. In case default shall be made by the Contractor in delivery of any of the said rails in accordance with the terms of this contract and the continuance of such default for thirty days the Commission may at its option cancel this contract but the Contractor shall nevertheless remain liable for all loss which may be suffered by the Commission by reason of the non-completion by the Contractor of

this contract PROVIDED HOWEVER that credit shall be given to the Contractor notwithstanding such cancellation for the price of all rails which shall have been delivered by the Contractor in accordance with this contract and said specifications.

7. The cost of inspection provided for by the specifications shall be borne by the Commission.

8. It is agreed that the said annexed specifications shall be deemed to be amended by making the phosphorus limit for the Bessemer rails not to exceed .085 instead of .075 as set out in said specifications, and subject to said alteration said specifications are hereby declared to be a part of this contract.

9. The Commission in consideration of the premises agrees to pay in Toronto funds for each shipment of said rails upon the arrival thereof at North Bay on presentation of invoices and certificates of the Inspector of the Commission attached to each draft, provided this shall not require the Commission to pay for any rails at an earlier date than the date of delivery hereby fixed.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and the hands of the proper officers in that behalf.

ALGOMA STEEL CO. LTD. (Seal)

O. E. DUNCAN.

(Sgd.) T. J. DRUMMOND,
President.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION. (Seal)

W. A. GRAHAM.

(Sgd) J. L. ENGLEHART,
Chairman.

A. J. MCGEE,
Secy.-Treas.

Pacific Type Locomotives.

Tenders were received for above as follows:

Name.	Residence.	Price.
Canadian Locomotive Co.....	Kingston	$21,925 00 F.O.B. North Bay
Baldwin Locomotive Works..	Philadelphia.....	18,325 00 " " " (Plus duty 35)
Montreal Locomotive Works.....	Montreal	23 000 00 " " "

Contract awarded to Canadian Locomotive Co., their tender being lowest.

MEMORANDUM OF AGREEMENT made in duplicate this thirty-first day of July in the year of our Lord one thousand nine hundred and ten.

BETWEEN:

THE CANADIAN LOCOMOTIVE COMPANY, LIMITED, hereinafter called the Contractor,

and

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION hereinafter called the Commission.

WITNESSETH:

1. In this contract the words "Master Mechanic" shall mean the Master Mechanic for the time being of the Commission.

2. The Contractor will supply and prove all and every kind of labor work, material, articles and things whatsoever necessary for the due construction and completion, and will well and duly build and complete in a perfect and workmanlike manner four Pacific Type Locomotive Engines with all necessary appliances (including one complete set of extra parts) for use on the line of Railway of the Commission, in strict compliance with the specifications hereto annexed and with the plans relating thereto, and to the complete satisfaction of the Master Mechanic, and will deliver the same to the Commission at North Bay at some time between October 1st, 1910, and March 31st, 1911, time being agreed to be material and of the essence of this contract, and in default of such delivery within the time aforesaid the contractor shall pay to the Commission by way of liquidated damages the sum of ten dollars in respect of each of the said locomotive engines for each day which may elapse after the said 31st day of March, 1911, before delivery of said locomotive engines respectively, which sum the Commission is authorized to deduct from the price hereinafter mentioned.

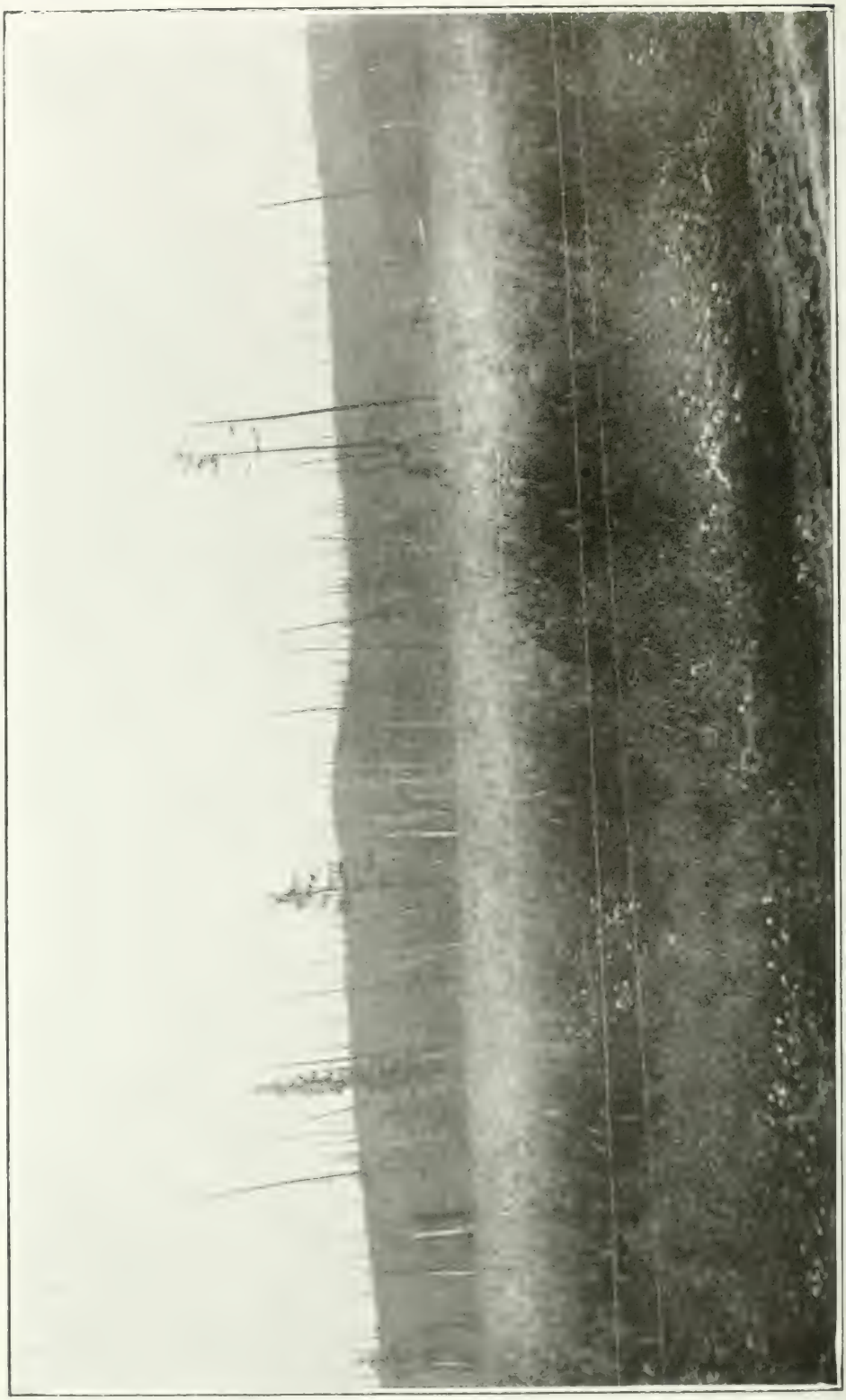
3. The Master Mechanic shall be sole judge of all work and material done and supplied under this contract, and his decision on all questions in dispute with regard to any such work or material shall be final, and the whole work shall be executed to his satisfaction as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the contractor to be paid therefor.

4. The Master Mechanic and any person he deputes to represent him in his absence in that behalf shall have free entry and access to the works of the contractor at all times while this contract is being performed, and shall have all reasonable facilities afforded to him and his representatives as aforesaid to satisfy them that the same is being carried out and performed in accordance with this contract.

5. The acceptance of and payment for said locomotive engines by the Commission shall not be considered as any waiver of the obligations of the contractor with reference thereto.

6. The Contractor guarantees all main parts such as boilers, frames, wheels, axles, rods, crank pins, axle boxes, eccentrices, cylinders, and connections not to show signs of defects or weakness within two years average service under fair usage. The books kept in the office of the Mechanic Superintendent of the Commission shall be taken as final and conclusive evidence of the times said springs, wheels, axles, etc., have lasted in service.

7. The Commission in consideration of the premises covenants with the Contractor that the contractor from time to time and in all respects having fulfilled



Oat field, Brown Farm - New Liskeard.

and performed the conditions of this contract (except the fulfillment of the guarantee which is to contine for two years) on the contractor's part intended to be fulfilled and performed shall be paid for each of the said locomotive engines the sum of twenty-one thousand eight hundred and twenty-five dollars ($21,825.00) within thirty days after delivery of said locomotive engines respectively as aforesaid.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and under the hands of the proper officers in that behalf.

(Sgd.) WM. HARTY,
CANADIAN LOCOMOTIVE CO., LTD. (Seal)

(Sgd.) D. J. EVANS.

TEMISKAMING AND NORTHERN ONTARIO
RAILWAY COMMISSION. (Seal)

(Sgd.) B. L. THOMPSON.

(Sgd.) J. L. ENGLEHART,
Chairman.

A. J. McGEE.
Secy.-Treas.

MONTREAL, QUE., July 25th, 1910.

To the Commissioners of the Temiskaming and Northern Ontario Railway Commission, North Bay, Ontario.

GENTLEMEN.—The American Brake Shoe and Foundry Company propose to furnish to the Temiskaming and Northern Ontario Railway Commission, including all other lines of railroad that it may purchase, control or operate, brake shoe covering its entire requirements for locomotive, tender, passenger and freight car equipment, and including all new locomotive, passenger, tender and freight car equipment that may be ordered, and the Temiskaming and Northern Ontario Railway Commission agrees to purchase from the American Brake Shoe and Foundry Company brake shoes as above, upon the following terms and conditions:

Per Net Ton.

Types and prices.

Locomotive Driver Brake Shoes.

Perfecto type with crucible steel insert and full plate steel back..... $70 00

Brake Shoes for Passenger Car Equipment and Locomotive Tenders.

Diamond "S" type flanged with full plate steel back and wrought lug 65 00

Diamond "S" type unflanged with full plate steel back and wrought lug 60 00

Brake Shoes for Freight Car Equipment.

Plain cast iron type, unflanged with full plate, steel back and wrought lug 14 00

F.O.B. cars St. Thomas, Ont., net cash with a discount of one per cent. (1%) for cash within thirty (30) days from date of invoice. This contract shall be for a period of three (3) years from the 21st day of March, 1910. All brake shoes shall be of the best quality of material and manufacture and satisfactory in every respect to the Temiskaming and

Delivery. Payment. Term of contract. Quality.

Northern Ontario Railway Commission, who shall have the privilege of rejecting any brake shoes, the quality of which is not satisfactory to them, and which shall be replaced with brake shoes of proper quality without expense to the Temiskaming and Northern Ontario Railway Commission.

Stock of Brake Shoes.

In order to secure prompt deliveries, the American Brake Shoe and Foundry Company will carry in stock one (1) month's supply of brake shoes as required by the Temiskaming and Northern Ontario Railway Commission, which upon the termination of this contract the Temiskaming and Northern Ontario Railway Commission agrees to immediately purchase from the American Brake Shoe and Foundry Company at the above mentioned prices.

Unavoidable delays.

The manufacture and delivery of brake shoes by the American Brake Shoe and Foundry Company under this contract shall be subject to delays occasioned by strikes, fires and other causes beyond the control of the American Brake Shoe and Foundry Company, and the American Brake Shoe and Foundry Company shall have a reasonable length of time to provide facilities for any considerable or abnormal increase over and above its present capacity.

Upon request of the Temiskaming and Northern Ontario Railway Commission, the American Brake Shoe and Foundry Company will furnish (through their Sales Agents, the Holden Company, Ltd.), an experienced inspector to instruct the employees of the Temiskaming and Northern Ontario Railway Commission in the use of steel back shoes, and to inspect the brake shoes in service, in stock and in the scrap piles, providing the Temiskaming and Northern Ontario Railway Commission

Inspection.

will furnish such inspector with free transportation to enable him to go to, from and between various division points on the lines of the Temiskaming and Northern Ontario Railway Commission, it being understood that the services of said inspector are rendered for the benefit and at the instance of the Temiskaming and Northern Ontario Railway Commission. The said inspector shall furnish duplicate reports to the Superintendent of Motive Power or any other officials of the Temiskaming and Northern Ontario Railway Commission as requested, and be subject to such reasonable regulations and restrictions in the performance of his duties as the Superintendent of Motive Power or other mechanical official may prescribe.

An acceptance of this proposition shall constitute an agreement between the Temiskaming and Northern Ontario Railway and the American Brake Shoe and Foundry Company in accordance with the terms and conditions herein set forth.

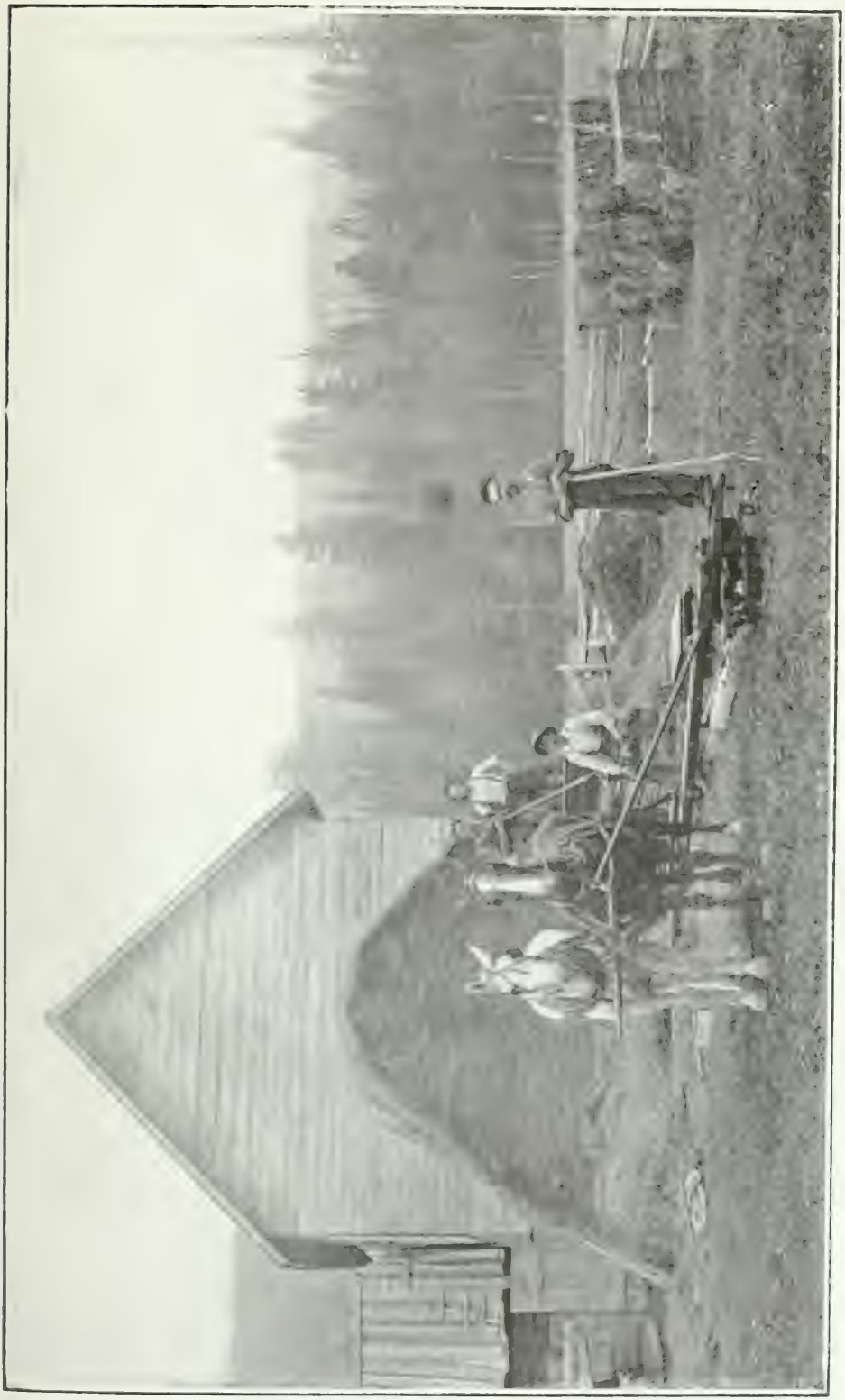
AMERICAN BRAKE SHOE AND FOUNDRY COMPANY,
PER THE HOLDEN COMPANY, LIMITED (*Agents*).
(Seal).

BY A. ALLAN, *Sales Manager*.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION (Seal)

(Sgd.) J. L. ENGLEHART, *Chairman*.
(Sgd.) A. J. MCGEE, *Secy.-Treas*.

Accepted this 16th day of August, 1910.



Pressing hay, Dunn's Farm—New Liskeard.

THIS AGREEMENT made this first day of August, A.D. 1910.

BETWEEN:

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission,

and

THE CANADA RAILWAY NEWS COMPANY, LIMITED, hereinafter called the Company.

1. The Commission in consideration of the premises and of the rental herein reserved hereby grants to the Company for the period of one year to be computed from the first day of August, 1910, the exclusive right, license and privilege of selling in and upon the station and station grounds of the Commission at Cobalt, newspapers, books, periodicals and publications, nuts, fruits, and confections of all kinds, cigars, stationery and fancy goods; and such other goods as are usually sold on Railway trains, and license to carry on on said premises the business of checking or taking charge of parcels.

2. In consideration of the premises and of the rights and privileges hereby granted the Company covenants and agrees to pay to the Commission for the year covered by this agreement the sum of six hundred dollars in equal monthly instalments in advance on the first day of each month, to the Treasurer of the Commission at the office of the Commission in the City of Toronto.

3. The Company shall have the option to a renewal of this lease for a further period of two years on giving to the Commission at its office in Toronto notice in writing of its desire for such renewal, at least two months before the expiration of the term hereby granted, provided that in case the passenger earnings of the Commission at said station during such renewed term show an increase over such passenger earnings during the term hereby granted the Company shall pay at the end of each year as increased rental in addition to the said rental of six hundred dollars per annum, a sum bearing the same proportion to the said rental of six hundred dollars as the increase of passenger earnings at said station during each of the years of the said renewed term, shall bear to the said passenger earnings for the term hereby granted.

4. The certificate of the Travelling Auditor of the Commission as to the passenger earnings of said station during each of the said years shall be absolutely binding upon the parties and shall be conclusive as to the amount of said earnings.

5. All the terms, provisions, covenants and conditions of the general agreement between the parties dated the thirtieth day of December, 1905, (and extended by four several subsequent agreements between the parties) shall, so far as same are capable of being made applicable to the business to be carried on hereunder, be applicable thereto and binding upon the parties as if expressly set out in these presents.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and under the hands of the proper officers in that behalf, the day and year first above written.

CANADA RAILWAY NEWS CO., LIMITED,
(Sgd.) T. P. PHELAN, *President.*
(Sgd.) J. D. WARDE, *Secy.-Treas.*

(Sgd.) J. H. LINSEY.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION. (Seal)
(Sgd.) J. L. ENGLEHART, *Chairman.*
(Sgd.) A. J. MCGEE, *Secy.-Treas.*

(Sgd.) B. L. THOMPSON.

CHANGES OF ALIGNMENT

Tenders for above were received as follows:

M.P. 48—51 and 60-61.

Name.	Residence.	Price.
P. Nicholson	North Bay	$15,553 00
A. Avery	North Bay	13,271 55
P. O'Donnell	Cochrane	13,950 35
P. Bourke	North Bay	26,175 70

Contract awarded to A. Avery, his tender being lowest.

ARTICLES OF AGREEMENT made in duplicate the thirty-first day of March, in the year of our Lord one thousand nine hundred and ten.

BETWEEN:

ALEXANDER AVERY, OF NORTH BAY, hereinafter called the Contractor,

and

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The Contractor will at his own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion, and will well and duly construct and complete in a perfect and workmanlike manner the clearing, grubbing, grading, embankment, protection, culverts, con-

crete work and all other matters and things referred in, or required by the annexed specifications, or otherwise in the opinion of the Engineer necessary for completing the work in connection with the cut-offs or changes of alignment on line of Railway of the Commission between mile post 60 and 61 and between mile post 18 and 51, all of which work shall be done in strict compliance with the said specifications and with the plans and drawings relating thereto to the complete satisfaction of the Engineer, and will deliver the said work to the Commission complete to the satisfaction of the Engineer, on or before 1st day of June, 1910, time being agreed, to be material and of the essence of this contract.

3. The Contractor shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer, and shall complete the work, including extras and alterations and notwithstanding any delay or hindrance by the Commission or by any other person or persons whomsoever to the satisfaction of the Engineer, by the date set out in the last preceding paragraph, or by such other date as on the written application of the Contractor for an extension of time, the Engineer may in writing substitute and in default shall pay to the Commission by way of liquidated damages the sum of ten dollars for each day which shall or may elapse after the date mentioned in the last preceding paragraph, or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be so completed and delivered.

4. The Engineer shall be at liberty at any time, either before the commencement or during the construction of the works or any portion thereof, to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works, or any part or parts thereof, or any other matter connected with the works, whether or not such changes increase or diminish, the work to be done or the cost of doing the same and the Contractor shall immediately comply with all requisitions of the Engineer in that behalf and shall commence, and shall complete the work so ordered to be done within the time specified by the Engineer, but the contractor shall not make any change in, or addition to or omission or deviation from the work, and shall not be entitled to any payment for any change, addition, deviation, or any extra work unless such change, addition, omission, deviation, or extra work shall have first been directed in writing by the Engineer and notified to the Contractor, and the decision of the Engineer as to whether such change or deviation increases or diminishes the work and as to the allowance to be made to the contractor or deducted from the Contractor in respect of any such increase or diminution shall be final, and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner, and to the same extent as to the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractor for any loss of anticipated profits, or for any other matter or thing in respect of, or in consequence of any change or deviation in, or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision upon all matters in dispute in respect to work and material shall be final and no works, or extra or additional works or changes, shall be deemed to have been executed, nor shall the contractor be entitled to payment for the same, unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the contractor to be paid therefor. It is further expressly agreed that the Engineer shall be the sole and final judge of all differences or disputes which shall,

or may at any time arise as to the meaning or true construction of the said specifications or of any of the plans relating thereto or of these presents and his decision in reference to any and all such disputes and differences shall be absolutely final and binding, and conclusive upon the parties.

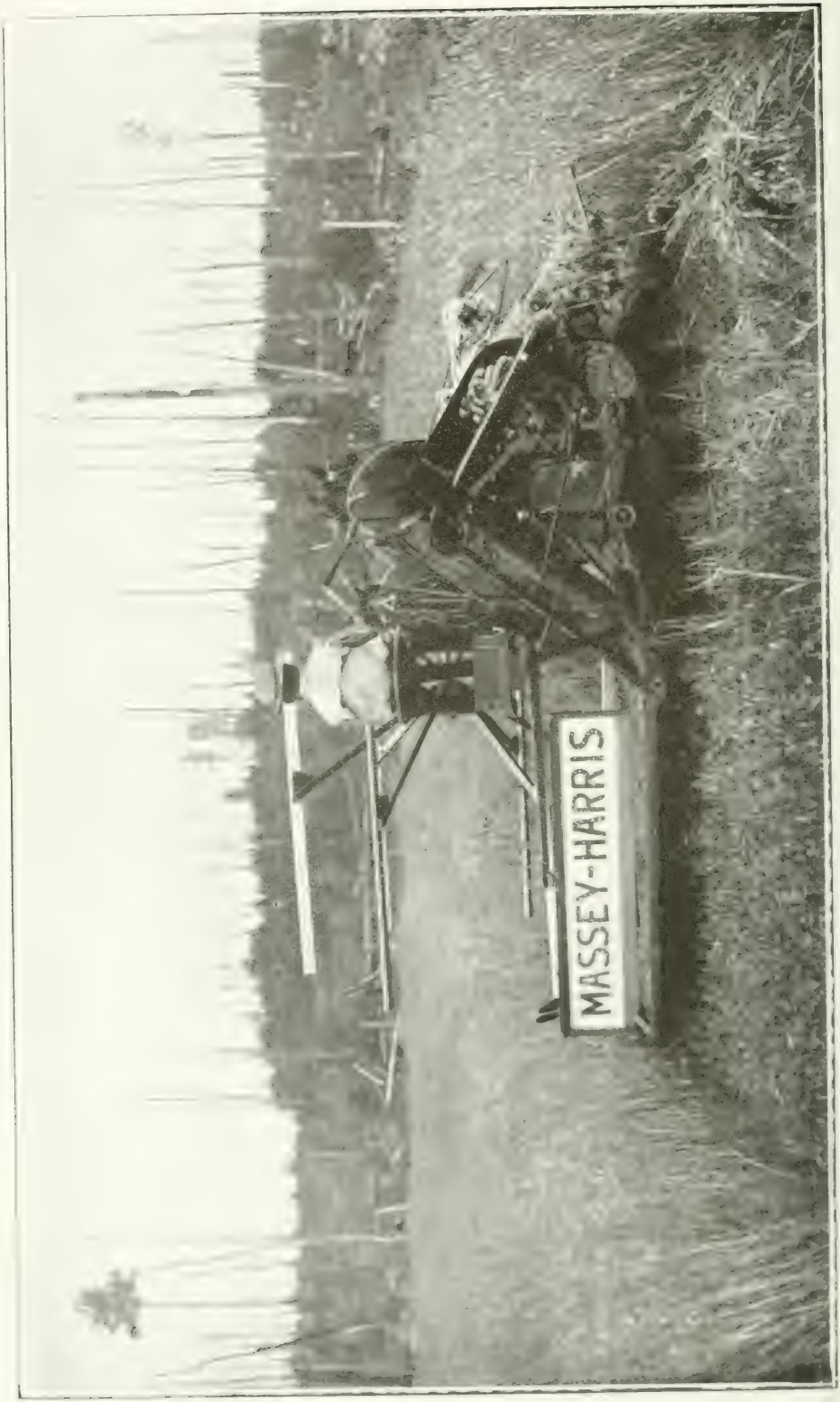
6. The Contractor shall be at the risk of, and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission, and if any such loss or damage occur before such completion, delivery and acceptance, the contractor shall immediately at his own expense repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof shall be completed within the time hereby limited.

7. The Contractor shall not at any time in connection with said work or any matter arising out of or connected with this contract employ any person or persons in contravention of the Alien Labor Act or the provisions of the Railway Act of Ontario, respecting the employment of alien labor and shall pay to all workmen laborers or servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, laborers and servants engaged in similar occupations in the district in which said work shall be performed and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause and in the event of the Commission, who shall be sole, absolute and final judge of these matters, being satisfied at any time that the contractor or any sub-contractor has been guilty of any violation of any of the provisions of this clause the Commission shall have the right from time to time and as often as it shall be satisfied that any such violation has taken place to withhold all payments from the contractor until any such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractor until the Commission shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. The Commission shall be entitled to retain as security for the due performance and completion of this contract by the Contractor the sum of five hundred dollars cash paid by the Contractor with his tender for said work, in addition to which the Contractor shall upon the execution hereof furnish further security for the due completion and execution of this contract by bond in form approved by the Commission and with surety approved by the Commission to the amount of two thousand dollars.

9. The Commission, in consideration of the premises, covenants with the Contractor that the contractor from time to time and in all respects having fulfilled and performed the provisions of this contract on the contractor's part intended to be fulfilled and performed will be paid for and in respect of the said work the amount payable therefore on the basis of the following unit prices?

For clearing $35.00 per acre; for grubbing $90.00 per acre; for crosslogging $8.00 per square, for solid rock excavation $1.70 per cubic yard; for loose rock excavation 75c. per cubic yard; for all other material excavation 34c. per cubic yard; for rip-rap $2.00 per cubic yard; for paving $2.00 per cubic yard; for 30 inch concrete culvert pipe, including putting in place, 50c. per lineal foot and for 24 inch concrete culvert pipe, including putting in place, 50c. per lineal foot, all as certified by the Engineer, subject to such deductions or additions as shall be certified by the Engineer; payments to be made from time to time on the progress certifi-



Cutting grain, Howie Farm—Liskeard.

cates of the Engineer equal to about ninety per cent. of the value of the work done approximately made up from the returns of progress measurements and computed at said unit prices and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of the said work.

10. It is intended that every allowance to which the Contractor shall be fairly entitled will be embraced in the Engineer's monthly certificates; but should the Contractor at any time have claims of any description which he considers are not included in the progress certificates it will be necessary for him to make such claims in writing to the Engineer within thirty days of the date of the dispatch to the Contractor of each certificate in which he alleges such claims to have been omitted.

11. The Contractor in presenting any such claims alleged to have been omitted as provided by the last preceding paragraph hereof must accompany same with satisfactory evidence of their accuracy and of the reason why the Contractor shall consider same should be allowed. Unless such claims are thus made during the progress of the work within thirty days as provided in the last preceding paragraph, the Contractor shall be forever shut out in respect thereof and shall have no claim on the Commission in the premises.

12. It is distinctly agreed that no implied contract of any kind whatsoever by, or on behalf of the Commission shall arise or be implied from anything contained in this contract including the said specifications, plans and drawings for said work, or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings are and shall be the only contracts, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded, it being further expressly agreed, however, that the said specifications and these presents are to be read together and in case of any discrepancy between these presents and anything contained in said specifications the provisions of these presents shall govern and in case of any discrepancy appearing at any time between the specifications, plans and drawings or any of them the contractor shall follow such one of them as the Engineer shall in writing direct.

AS WITNESS the hand and seal of the Contractor and the corporate seal of the said Commission under the hands of its proper officers in that behalf.

SIGNED, SEALED AND DELIVERED

(Sgd.) ALEX. AVERY. (Seal)

In the presence of:
(Sgd.) B. L. THOMPSON.

TEMISKAMING AND NORTHERN ONTARIO
RAILWAY COMMISSION,
(Sgd.) J. L. ENGLEHART, *Chairman.*
A. J. MCGEE, *Secy.-Treas.*

60,000 TONS OF COAL.

Twenty-two tenders were received for supplying 60,000 tons of coal, for year April, 1910, to April, 1911. After careful consideration, and in appreciation of assistance rendered by the Coal Companies who received 1909 contract, resolved contract be awarded as follows

Buffalo and Susquehanna Coal Co.	40,000 tons at	$1.95
Widnoon Coal and Coke Co.	20,000 tons at	2.03

MEMORANDUM OF AGREEMENT made this first day of March in the year of our Lord, 1910.

BETWEEN:

WIDNOON COAL MINING COMPANY, OF BUFFALO, N. Y., hereinafter called the Contractors,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. Subject to the terms hereof the Contractors agree to sell to the Commission, and the Commission agree to buy from the Contractors, twenty thousand net tons, run of mine coal, of the same grade as the five cars forwarded to the Commission by the Contractors, in the month of August, 1909, known as "Screened Mine Run Coal," at the price of two dollars and three cents ($2.03) per net ton (two thousand pounds) on board cars International Bridge, Black Rock, N.Y. Delivery as required up to November 1st, 1910, and subject to the provisions hereinafter stated.

2. The Contractors absolutely guarantee that all coal to be delivered under this contract shall be suitable for the purposes of the Railway of the Commission, and shall on analysis be equal to analysis of five cars heretofore mentioned, forwarded to the Commission as a trial sample, said analysis to be made by Milton L. Hersey, Analyst and Chemist, of Montreal, and he shall be the sole judge as to whether coal delivered under this contract is of same standard as to analysis as five test cars heretofore mentioned. The Commission shall have the right to make a test of any or all carloads and shall have the right to reject any or all carloads found below said standard of analysis, and such rejected loads shall be subject to disposal as provided in clause three of this contract.

3. In case any carload of coal delivered under this contract shall be found unsuitable for the purpose of the Railway of the Commission, the Commission shall be at liberty to reject such carload or the portion of it not used, notwithstanding that delivery of same may theretofore have been taken; notwithstanding that the necessary entries for passing same through the Customs may have been made, and notwithstanding that same may have been unloaded, or stored, or wholly or partially paid for or otherwise dealt with, and thereupon the same shall be at the risk and shall be deemed for all purposes to the property of the Contractors who shall forthwith remove and take delivery of same and repay to the Commission all money which the Commission may have paid in respect thereof, whether for freight, duties, cost of analysis, storage, unloading or any other charges or expenses, and if the Commission shall theretofore have paid the price or any part thereof, the Contractors shall forthwith repay the same, IT BEING, HOWEVER, EXPRESSLY AGREED THAT the aforesaid right of the Commission to reject any coal so delivered shall be in addition to all its other legal rights and remedies in the premises and not in substitution for same or any of them.

4. Should coal at any time delivered under this contract prove in the opinion of the Master Mechanic or the Superintendent of the Commission unsuitable for the purposes of the Railway of the Commission, the Commission may at its option by notice in writing to the Contractors cancel and annul this contract as to any coal not theretofore shipped without prejudice to the liability of the Contractors for any breaches of this contract.

5. Beginning with the month of April, 1910, there shall be shipped by the Contractors, from the mines properly consigned to the Commission at North Bay Junction, and with all freight and other charges prepaid to the International Bridge, Black Rock, N. Y., approximately three cars per day, subject to the increase or diminution from time to time of the daily shipments as shall be required by written notice by letter or telegram from the storekeeper of the Commission to the Contractors at Buffalo, such notice to be duly sent from North Bay at least one week prior to the week to the shipments of which such notice shall apply. Coal will be sold at initial manifest rates which shall be binding and no claim shall be allowed for short weight except in case of unusual loss by reason of defective cars.

6. The Commission shall further have the right at any time to cancel its purchase hereunder to the extent of not more than ten per cent. of the quantity of coal covered by this contract, in which case such ten per cent. or less proportion, as the case may be, shall be taken from the last deliveries herein agreed upon.

7. If during the continuance of this contract the Commission is unable to make use of the said coal by reason of strike, destruction or disability of its Railway or any part thereof, the Commission shall have the right during the continuance of such disability at its option to discontinue taking coal in the quantities herein specified.

It is also understood that should the contractors encounter strikes, accidents, shut-downs at the mines for reasons beyond their control, they shall not be expected to deliver on this contract during the period of suspension.

8. At the time of each shipment the Contractor shall send to the Storekeeper of the Commission at North Bay, five correct invoices of each car of coal covered by such consignment charged at the price of Two Dollars and three cents ($2.03) per ton aforesaid, two of which copies shall be duly certified as required by the Canadian Customs Law.

9. Payment shall be made by the Commission to the Contractors in Toronto funds, for all coal delivered to the Commission in any one month, on or before the 20th day of the following month.

10. This contract shall inure to the benefit of and be binding upon the successors and assigns of the parties respectively.

AS WITNESS the corporate seals of the said parties under the hands of the proper officers in that behalf.

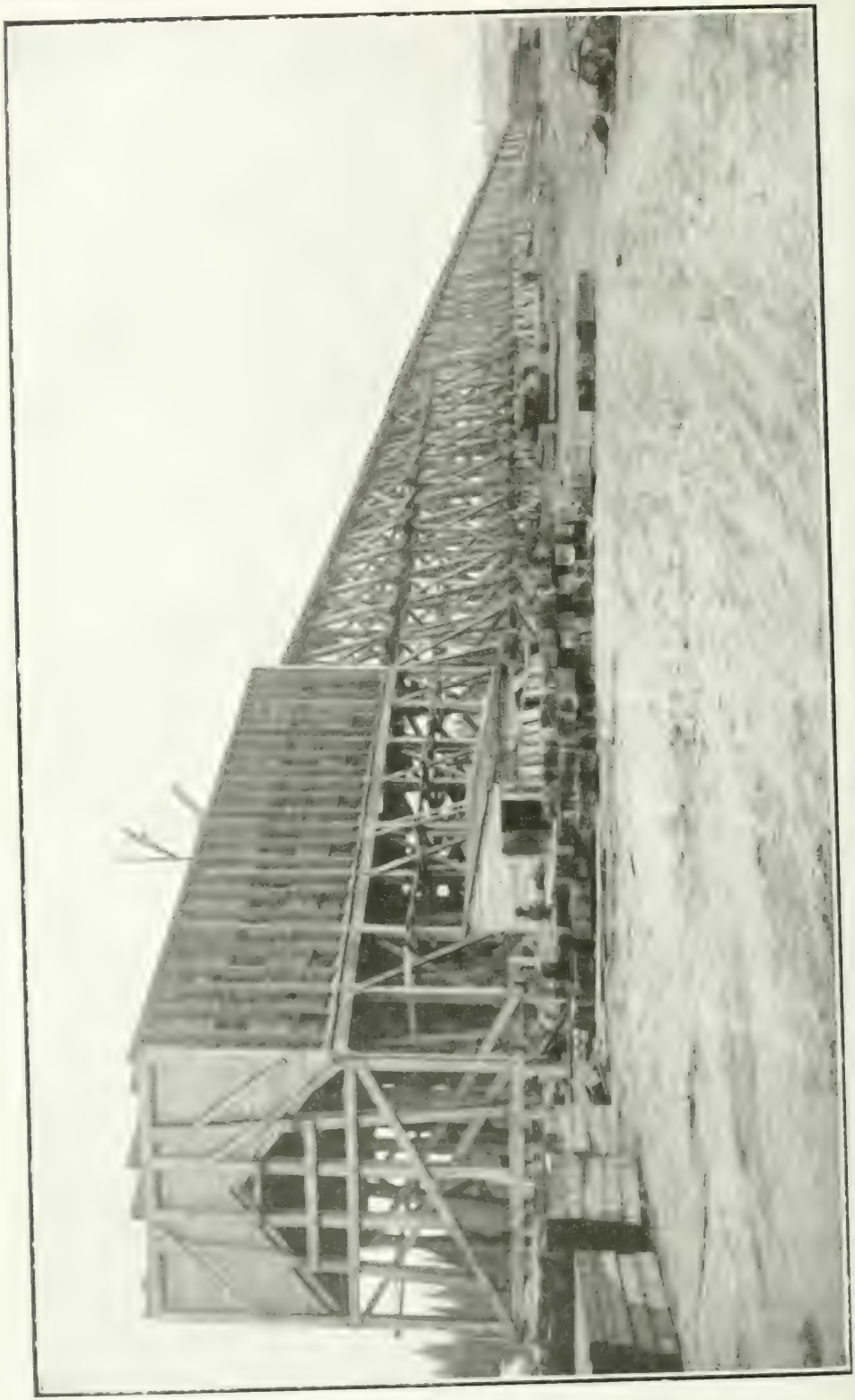
It is agreed that any increase in the price of mining bituminous coal in the Central Pennsylvania field for the scale year beginning April 1st, 1910, shall be added to the price herein mentioned, and paid to contractors for the coal furnished hereunder.

WIDNOON COAL MINING CO.
(Seal)

(Sgd.) F. H. BECK, *President.*
(Sgd.) J. C. HAMMOND, *Secretary.*

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.
(Seal)

(Sgd.) J. L. ENGLEHART, *Chairman.*
(Sgd.) A. J. MCGEE, *Sec.-Treasurer.*



Cochrane Coal Trestle.

MEMORANDUM OF AGREEMENT made this 1st day of March, in the year of our Lord, 1910.

BETWEEN:

BUFFALO AND SUSQUEHANNA COAL AND COKE COMPANY OF BUFFALO, N. Y., hereinafter called the Contractors,

and

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

1. Subject to the terms hereof the Contractors agree to sell to the Commission and the Commission agrees to buy from the Contractors, Forty Thousand net tons run of mine coal of DuBois and Saganore Mines at the price of one dollar and ninety-five cents per net ton (two thousand pounds) on board cars International Bridge, Black Rock, N. Y. Delivery as required up to April 1st, 1911, and subject to the provisions hereinafter stated.

2. The contractor absolutely guarantee (*a*) that all coal to be delivered under this contract shall be suitable for the purposes of the Railway of the Commission, and (*b*) shall on analysis in manner hereinafter provided prove to be at least equal to the following, which is agreed to be the standard analysis:—

Moisture	1.25
Hydro-Carbons	28.75
Fixed Carbon	63.25
Ash	6.75
	100.00

Sulphur not exceeding 1.25.

3. Samples for purpose of analysis may be taken (so far as deemed necessary by the Commission) from each carload of coal on or at any time after the arrival thereof at North Bay and may be so taken at any point on the Railway of the Commission and such sample shall consist of not less than twenty-five pounds of lump and slack in the same relative proportion as appears in the shipment, to be taken from carload by the Superintendent, the Master Mechanic or the Storekeeper of the Commission and any sample so taken shall be conclusively deemed to be a fair sample for purposes of analysis of such carload and the certificate of Milton L. Hersey, Analyst and Chemist, of Montreal, as to whether such sample answers the aforesaid guarantee (*b*) of the Contractors shall be absolutely final and binding and conclusive upon the parties as to whether the carload from which such sample has been taken answers such guarantee.

4. In case of analysis as aforesaid any carload of coal delivered under this contract shall be found below standard quality as shown by the Analyst's certificate as aforesaid, the Commission shall be at liberty to reject such carload or the portion of it not used, notwithstanding that delivery of same may theretofore have been taken, notwithstanding that the necessary entries for passing same through the Customs may have been made and notwithstanding that same may have been unloaded or stored or wholly or partially paid for or otherwise dealt with and thereupon the same shall be at the risk of and shall be deemed for all purposes to be the property of the Contractors who shall forthwith remove and take delivery of same and repay to the Commission all moneys which the Commission may have

paid in respect thereof whether for freight, duties, cost of analysis, storage, unloading or any other charges or expenses and if the Commission shall theretofore have paid the price or any part thereof the Contractors shall forthwith repay the same. IT BEING HOWEVER EXPRESSLY AGREED that the aforesaid right of the Commission to reject any coal so delivered shall be in addition to all its other legal rights and remedies in the premises and not in substitution for the same or any of them.

5. Should coal at any time delivered under this contract whether analyzed as aforesaid or not and irrespective of the result of such analysis prove in the opinion of the Master Mechanic or Superintendent of the Commission unsuitable for the purposes of the Railway of the Commission, the Commission may at its option by notice in writing to the Contractors cancel and annul this contract as to any coal not theretofore shipped without prejudice to the liability of the Contractors for any breaches of this contract.

6. Beginning with the month of March, 1910, there shall be shipped by the Contractors, from the mines properly consigned to the Commission at North Bay Junction, and with all freight and other charges prepaid to International Bridge, Black Rock, N. Y., approximately twelve hundred tons per week subject to the increase or diminution from time to time of the weekly shipments as shall be required by written notice by letter or telegram from the Storekeeper of the Commission at North Bay to the Contractors at Buffalo, such notice to be duly sent from North Bay at least one week prior to the week to the shipments of which such notice shall apply. Coal will be sold at initial manifest weights which shall be binding and no claim shall be allowed for short weight except in case of unusual loss by reason of defective cars.

7. The Commission shall further have the right at any time to cancel its purchase hereunder to the extent of not more than ten per cent. of the quantity of coal covered by this contract, in which case such ten per cent. or less proportion as the case may be, shall be taken from the last deliveries herein agreed upon.

8. If, during the continuance of this contract, the Commission is unable to make use of the said coal by reason of strike, destruction or disability of its Railway or any part thereof, the Commission shall have the right during the continuance of such disability at its option to discontinue taking coal in the quantities herein specified.

It is also understood that should Contractors encounter strikes, accidents, shutdowns at the mines for reasons beyond their control, they shall not be expected to deliver on this contract during the period of suspension.

9. At the time of each shipment the Contractors shall send to the Storekeeper of the Commission at North Bay five correct copies of invoice of the coal covered by such consignment charged at the price of One Dollar and ninety-five cents per ton aforesaid, two of which copies shall be duly certified as required by the Canadian Customs Law.

10. Payments shall be made by the Commission to the Contractors, in Toronto funds, for all coal delivered to the Commission at North Bay in any one month, on or before the 20th day of the following month.

11. This contract shall inure to the benefit of and be binding upon the successors and assigns of the parties respectively.

12. It is understood the price above named for delivery f.o.b. cars International Bridge, Black Rock, N. Y., is based on the present scale of wages paid miners in the Reynoldsville District and as the agreement with the miners expires April 1st next, it is understood that in the event of the Contractors having to pay an

increase in the mining scale after that time and during the period of this contract, the Commission are to allow Contractors to add same to the price of $1.95 per net ton.

It is also understood should the Contractors be able to effect an arrangement with their miners after April 1st whereby they secure a lower mining scale than is now in effect, the Commission would get the benefit of such reduction.

IN WITNESS the corporate seal of the said parties under the hands of the proper officers in that behalf.

BUFFALO AND SUSQUEHANNA COAL AND COKE CO.
By J. N. TROUNCE, *General Sales Agent.*

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.
(Sgd.) J. L. ENGLEHART, *Chairman.*
A. J. McGEE, *Secretary-Treasurer.*

PARLOR CAFE CARS.

Tenders for above were received as follows:

Canadian Car and Foundry Co.	$19,500.00 each.
Preston Car and Coach Co.	25,100.00 "
Silliker Car Co.	22,900.00 "

Contract awarded to Canadian Car and Foundry Co., their tender being lowest.

ARTICLES OF AGREEMENT made in duplicate this 28th day of February, A.D., 1910.

BETWEEN:

CANADIAN CAR AND FOUNDRY COMPANY, LIMITED, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "Inspector" shall mean the Inspector for the time being appointed by the Commission to represent and act for the Commission in the supervision of the construction and in the inspection and certification of the parlor and cafe cars hereinafter referred to.

2. The Contractor will supply and provide all and every kind of work, labor, materials, articles, and things whatsoever for the due construction and completion and will well and duly build and complete in a perfect and workmanlike manner three parlor and cafe cars with all necessary appliances for use on the line of Railway of the Commission in strict compliance with the specifications hereto annexed and with the plans and drawings relating thereto (save and except that the Westinghouse automatic quick action air brake apparatus mentioned in the said specifications shall be furnished by the Commission subject to the said cars being pro-

perly equipped therewith by the Contractor) to the complete satisfaction of the Inspector, and the said Contractor will deliver the said parlor and cafe cars duly completed to the Commission free on the railway tracks of the Commission at the Town of North Bay on or before the thirtieth day of October, 1910, time being agreed to be material and of the essence of this contract, and in default of such delivery within the time aforesaid the contractor shall pay to the Commission by way of liquidated damages the sum of ten dollars in respect of each car for each day which may elapse after the date aforesaid before delivery of said cars respectively, which sums the Commission is authorized to deduct from the purchase price hereinafter mentioned. PROVIDED HOWEVER that such damages shall not be recoverable in respect of any delays occasioned by strikes, accidents, delays of other carriers or other delays which are unavoidable or beyond the control of the Contractor.

3. The Inspector shall be the sole judge of all work and material done and supplied under this contract and his decision on all questions in dispute with regard to any such work or material shall be final, and the whole work shall be executed to his satisfaction as evidenced by his certificate in writing which certificate shall be a condition precedent to the right of the contractor to be paid therefor.

4. The Inspector and all persons from time to time authorized by him in that behalf shall have free entry and access to the works of the contractor at all times while this contract is being performed and shall have all reasonable facilities afforded to him and his representative as aforesaid to satisfy them that the same is being carried out and performed in accordance with this contract.

5. The acceptance or payment of one of the said cars by the Commission shall not be considered as any waiver of the obligations of the contractor with reference to the others.

6. This contract shall not be considered as fully completed until the guarantee clauses in the attached specifications respecting wheels, springs, axles, etc., have been fully complied with. The books kept in the office of the Mechanical Superintendent of the Commission shall be taken as final and exclusive evidence of the time the said wheels, springs, axles, etc., have lasted in service.

7. The Commission in consideration of the premises covenants with the contractor that the contractor from time to time and in all respects having fulfilled and performed the provisions of this contract (except the fulfilment of the guarantee which is to continue as shown in the said specifications) on the contractor's part intended to be fulfilled and performed will be paid for and in respect of each of the said parlor and cafe cars the sum of Nineteen thousand five hundred dollars, payment to be made within thirty days after the delivery of each car.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and under the hands of the proper officers in that behalf.

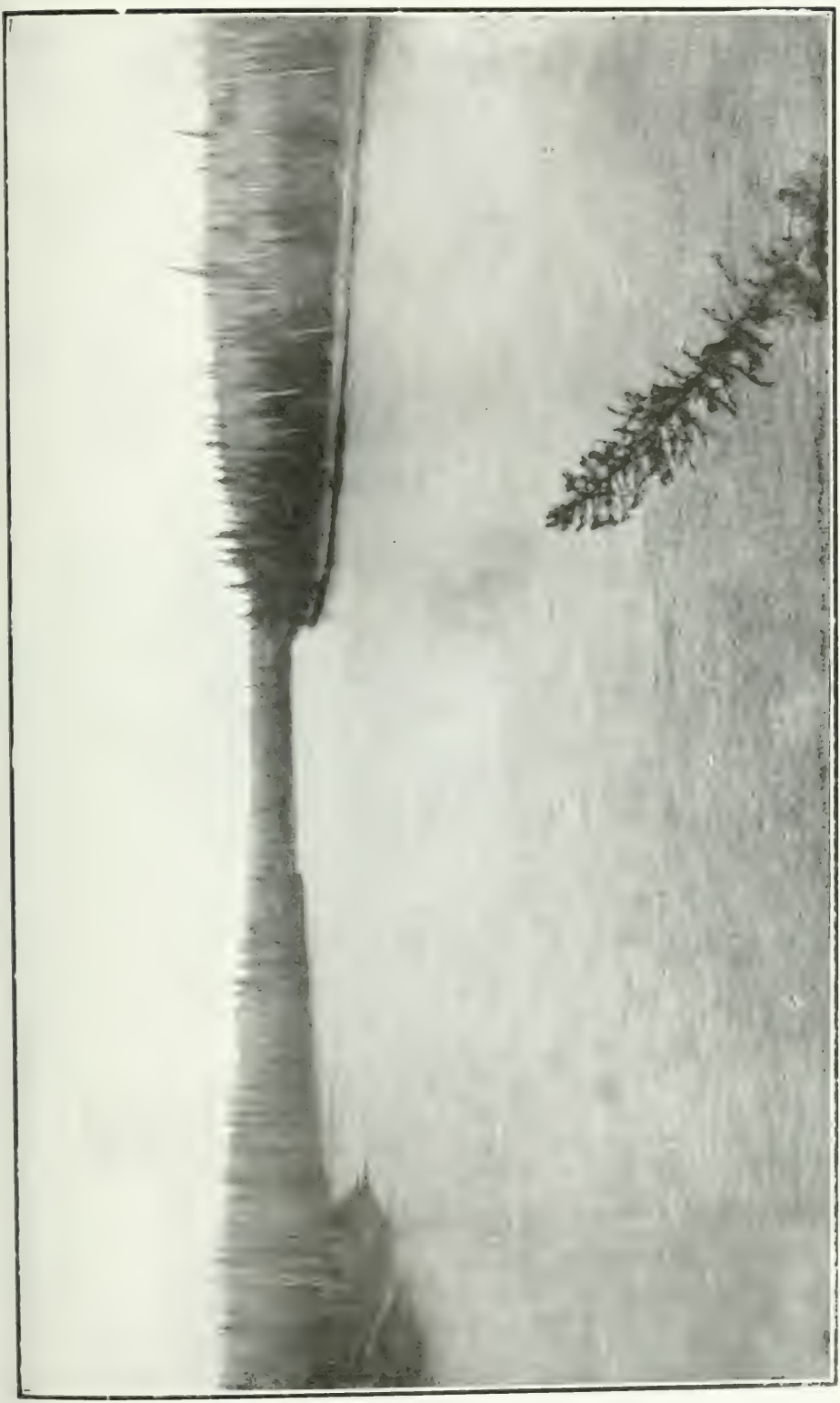
CANADIAN CAR AND FOUNDRY CO., LTD. (Seal)
(Sgd.) W. W. BUTLER, *First Vice-President.*

(Sgd.) G. G. ELSTEN.

G. A. SKELLOW, *Secretary.*
TEMISKAMING AND NORTHERN ONTARIO
RAILWAY COMMISSION. (Seal)

(Sgd.) B. L. THOMPSON.

(Sgd.) J. L. ENGLEHART, *Chairman.*
A. J. MCGIE, *Secy.-Treas.*



View of Mattagami River

TENDERS FOR ABUTMENTS M.P. 48.91 AND 119.13

M. P. Pigott & Son, Hamilton, Ont.

	M.P. 48.91.	119.13
Solid rock excavation per cu. yd.	$2 50	$2 50
Loose " " "	1 50	1 50
All other material per cu. yd.	1 40	1 20
Concrete 1 : 3 : 5 : "	10 00	9 25
Concrete 1 : 4 : 4 : "	10 20	10 50

Peter Nicholson, North Bay, Ont.

Solid rock excavation per cu. yd.	2 00	2 00
Loose " " "	1 10	1 10
All other material per cu. yd.	50	50
Concrete 1 : 3 : 5 : "	9 00	9 50
Concrete 1 : 4 : 4 : "	9 25	9 75

Contract awarded to P. Nicholson, his tender being lowest.

ARTICLES OF AGREEMENT made in duplicate this Thirtieth day of April, in the year of our Lord one thousand nine hundred and ten.

BETWEEN:

P. NICHOLSON of the Town of North Bay, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "Works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters, and things required to be done, furnished, and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being of the Commission.

2. The Contractor will at his own expense provide all and every kind of work, labor, materials, articles, and things whatsoever for the due construction and completion and will well and duly build and complete in a perfect and workmanlike manner the abutments for bridge at Mileage 48.91 on the line of railway of the Commission in such position as the Engineer may direct in strict compliance with the specifications hereto annexed and with the plans and drawings relating thereto and to the complete satisfaction of the Engineer, and will deliver the said abutments complete to the Commission on or before the First day of September, one thousand nine hundred and ten, time being agreed to be material and of the essence of this contract.

3. The Contractor shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work, including extras and alterations and notwithstanding any delay or hindrance by the Commission, to the satisfaction of the Engineer by the date set out in the last preceding paragraph or by such other date as on the written application of the Contractor for an extension of time the Engineer may in writing substitute, and

in default shall pay to the Commission by way of liquidated damages the sum of five dollars for each day which shall or may elapse after the date mentioned in last preceding paragraph or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be so completed and delivered.

4. The Engineer shall be at liberty at any time either before the commencement or during construction of the works or any portion thereof to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof or in any other things connected with the works whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the Contractor shall immediately comply with all the requisitions of the Engineer in that behalf and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the Contractor shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Engineer and notified to the Contractor and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractor or deducted from the Contractor in respect of any such increase or diminution shall be final and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as to the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractor for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality and his decision on all matters in dispute in respect to work and material shall be final, and no works or extra or additional works or changes shall be deemed to have been executed nor shall the Contractor be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

6. The Contractor shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission, and if any such loss or damage occur before such completion, delivery and acceptance, the Contractor shall immediately, at his own expense, repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof will be completed within the time hereby limited.

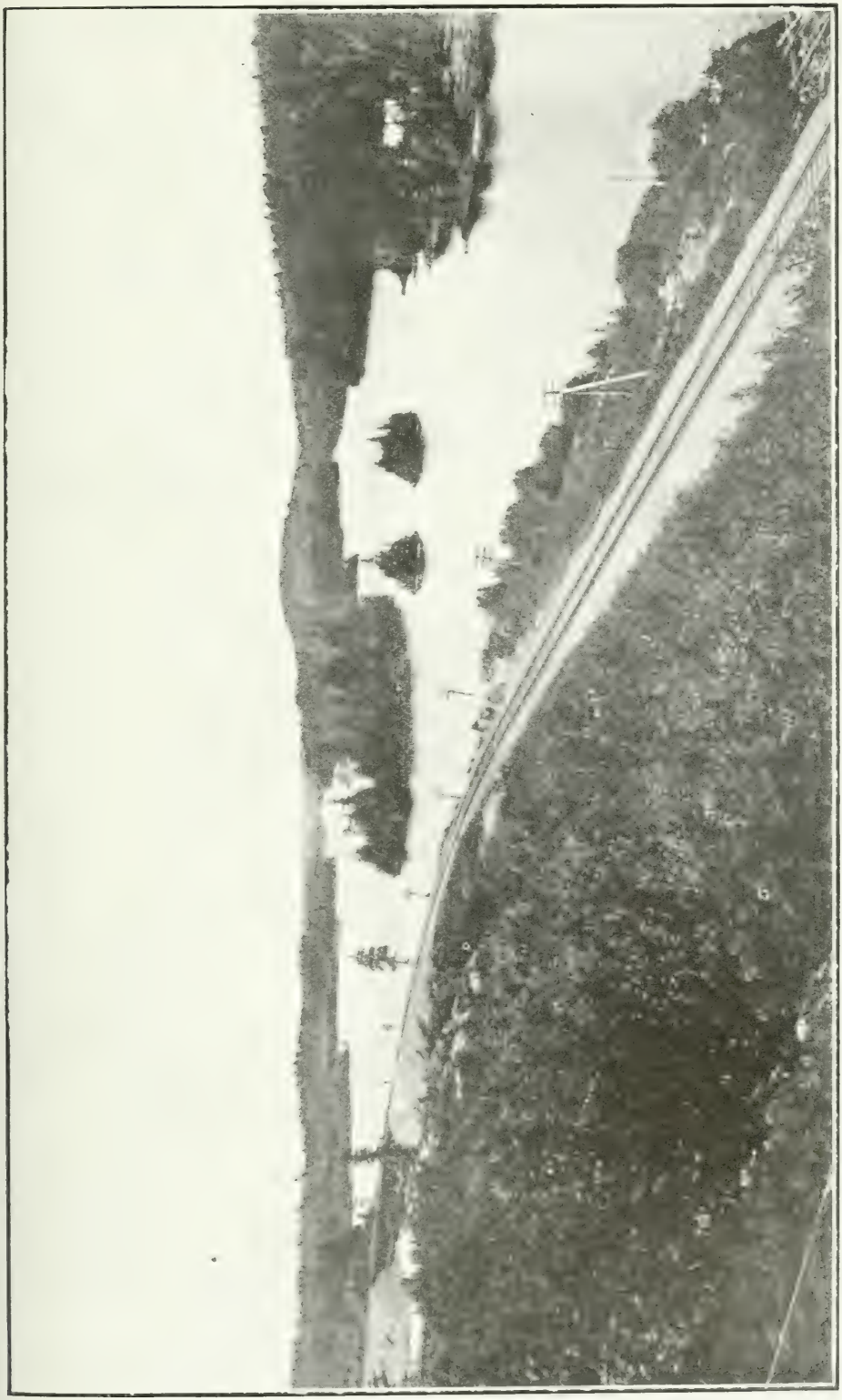
7. The Contractor shall not at any time in connection with said work or any matter arising out of or connected with this contract employ any person or persons in contravention of the Alien Labour Act or the provisions of the Railway Act of Ontario respecting the employment of alien labor and shall pay to all workmen, laborers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, laborers and servants engaged in similar occupations in the district in which said work shall be performed, and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause, and in the event of the Commission, who shall be the sole, absolute and final judge of these matters, being satisfied at any time that the Contractor

or any sub-contractor has been guilty of any violation of any of the provisions of this clause the Commission shall have the right from time to time and as often as it shall be satisfied that any such violation has taken place to withhold all payments from the Contractor until any such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractor until the Commission shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. The Commission shall be entitled to hold as security for the due performance and completion of this contract the sum of Four hundred dollars cash, paid by the Contractor to the Commission at or before the execution of these presents.

9. The Commission in consideration of the premises, covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractor's part intended to be fulfilled and performed shall be paid for and in respect of the said work on the basis of the following unit prices: for solid rock excavation, two dollars per cubic yard; for loose rock excavation, one dollar and ten cents per cubic yard; for all other material excavation, fifty cents per cubic yard; for concrete required by the specifications to be in the proportion of 1-3-5, nine dollars per cubic yard; and for concrete required by the specifications to be in the proportion of 1-2-4, nine dollars and twenty-five cents per cubic yard; all as certified by the Engineer and subject to such deductions or additions as shall be certified by the Engineer, payments to be made from time to time on progress certificates of the Engineer, and the final payment to be made within forty days after the delivery to the Commission of the Engineer's final certificate certifying to the completion of the said work to his satisfaction.

10. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract, including the said specifications, plans and drawings or the tender of the said Contractor for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreement and stipulations contained in these presents and in the said specifications, plans and drawings are, and shall be, the only contracts, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded: it being further expressly agreed that the said specifications and these presents are to be read together and in case of any discrepancy between these presents and anything contained in such specifications, the provisions of these presents shall govern, and in case of any discrepancy appearing at any time between the specifications, plans and drawings, or any of them, the Contractor shall follow such one of them as the Engineer shall in writing direct.



Lake Temagami, from south of station.

AS WITNESS the hand and seal of the said Contractor and the Corporate Seal of the said Commission under the hands of its proper officers in that behalf.

SIGNED, SEALED AND DELIVERED,
In the presence of
C. L. FERGUSON,
(As to signature of Pete Nicholson).

PETE NICHOLSON.

TEMISKAMING AND NORTHERN ONTARIO
RAILWAY COMMISSION.

J. L. ENGLEHART, *Chairman.*
A. J. McGEE, *Sec.-Treasurer.*

North Wabis Bridge.

Tenders were received for above as follows:

Name.	Price.
Dominion Bridge Co., Montreal	$4.85 per 100 pounds.
Hamilton Bridge Co., Hamilton	4.75 " " "
Canadian Bridge Co., Walkerville	4.81 " " "

Contract awarded to Hamilton Bridge Co., their tender being lowest.

ARTICLES OF AGREEMENT made in duplicate this 12th day of March, in the year of our Lord one thousand nine hundred and ten.

BETWEEN:

THE HAMILTON BRIDGE COMPANY, LIMITED, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "Engineer" shall mean the Chief Engineer for the time being of the Commission, and having control of the work of construction of the Railway line of the Commission north of North Bay, and the word "Inspector" shall mean the Inspector for the time being appointed by such Chief Engineer to represent and act for the Commission in the supervision of the construction and direction of the work herein contracted for.

2. The Contractor will supply and provide all and every kind of work, labour, materials, articles and things whatsoever necessary for the due construction and

erection, and will well and duly build, erect and complete in a perfect and workmanlike manner the steel superstructure for bridge at the North Wabis crossing of the line of Railway of the Commission at or about Mileage 119.13, with all necessary appliances ready to receive the rails, in strict compliance with the 1908 Dominion Government specifications as to material and workmanship, and class "heavy" loading of same specifications as to strength except so far as such Dominion Government specifications are modified by the general specifications hereto annexed, and in strict compliance with the general specifications hereto annexed and with the plans therein referred to, all to the complete satisfaction of the Engineer as to material and workmanship of the structure and as to the erection and completion thereof, it being agreed that the said work shall include the placing of ties and guard rails and the painting of the structure, and will deliver the same complete to the Commission on or before the 15th day of September, 1910, or on or before such later date as on the written application of the Contractor for an extension of time the Engineer may in writing substitute, time being agreed to be material and of the essence of this contract, and in case of default by the Contractor in having said bridge so delivered completed within the time hereby limited the Contractor shall pay to the Commission by way of liquidated and ascertained damages for any such breach the sum of Fifty dollars ($50.00) for each day which shall or may elapse after the time hereby limited as aforesaid until the delivery of the said bridge complete as aforesaid, provided, however, that such payment of Fifty dollars ($50.00) per day shall not be exacted in respect of any absolutely necessary delay due to non-delivery of material by the mills, the loss of material during ocean transit, or to other causes entirely beyond the control of the Contractor.

3. The Engineer shall be the sole judge of the material and workmanship used in the said structure, and shall also be the sole judge of the erection and completion of the said work, and his decision on all questions in dispute with regard to the erection and completion of the said work shall be final, and same shall be executed to his satisfaction as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid for said work.

4. The Engineer and all persons from time to time authorized by him on his behalf shall have free entry and access to the works of the Contractor at all times while this contract is being performed, and shall have all reasonable facilities afforded him and his representatives as aforesaid to satisfy them that same is being carried out and performed in accordance with this contract.

5. All portions of the structure to be manufactured under this contract shall be weighed and loaded on cars in presence of the Engineer or Inspector, and if any material is weighed upon the cars, such cars, including all blocking to be used in supporting the steel work thereon, must similarly be weighed in the presence of the Engineer or Inspector before being loaded, and the certificate in writing of the Engineer or Inspector, certifying to the correctness of all weights of goods charged for hereunder, shall be a condition precedent to the right of the Contractor to be paid for said work.

6. The Contractor shall, as part of this contract furnish to the Commission forthwith upon the execution of these presents, lay out plans of the masonry required, and the Commission agrees to complete the foundations and concrete work ready to receive such structure according to such lay out plans on or before the first day of July, 1910.

7. Subject to the special provisions of the specifications in that behalf the Commission, in consideration of the premises, covenants with the Contractor that

View of Englehart.

the Contractor, having in all respects performed and fulfilled the provisions of this contract on the Contractor's part intended to be fulfilled and performed, will be paid for and in respect of the said work the sum of $1\frac{3}{4}$ cents per pound weight of said steel structure as delivered on board cars at Hamilton, payable as follows: Sixty per cent. of the value of any shipment of materials upon delivery of same on board cars at the works of the Contractor in Hamilton, twenty per cent. additional upon delivery of same at the site of the proposed bridge, and the balance on monthly progress estimates certified by the Engineer as the erection of the work proceeds, and the final payment to be made within forty days after the final certificate of the Engineer.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and under the hands of the proper officers in that behalf.

THE HAMILTON BRIDGE WORKS CO., LTD.
(Seal)

(Sgd.) LAURA L. DRESSEL.

(Sgd.) R. M. ROY, *Manager.*
TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.
(Seal)

(Sgd.) B. L. THOMPSON.

(Sgd.) J. L. ENGLEHART, *Chairman.*
A. J. MCGEE, *Secy.-Treas.*

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40 ft. Deck Plate Girder Span, M.P. 48.91.

Tenders were received for above as follows:

Name.	Price.
Dominion Bridge Co.	$3.48 per 100 lbs., f.o.b., North Bay.
Canadian Bridge Co.	3.50 " " " "
Hamilton Bridge Co.	3.35 " " " "
Dickson Bridge Co.	1,100.00
Canada Foundry Co.	3.28 " " " "

Contract awarded to Hamilton Bridge Co., tenders of Canada Foundry Co. and Dickson Bridge Co. not being in accordance with the specifications

ARTICLES OF AGREEMENT made in duplicate this 30th day of April, in the year of our Lord one thousand nine hundred and ten.

BETWEEN:

THE HAMILTON BRIDGE WORKS COMPANY, LIMITED, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "Engineer" shall mean the Chief Engineer for the time being of the Commission and the word "Inspector" shall mean the Inspector for the time being appointed by such Chief Engineer to represent and act for the Commission in the supervision of the construction and completion of the work herein contracted for.

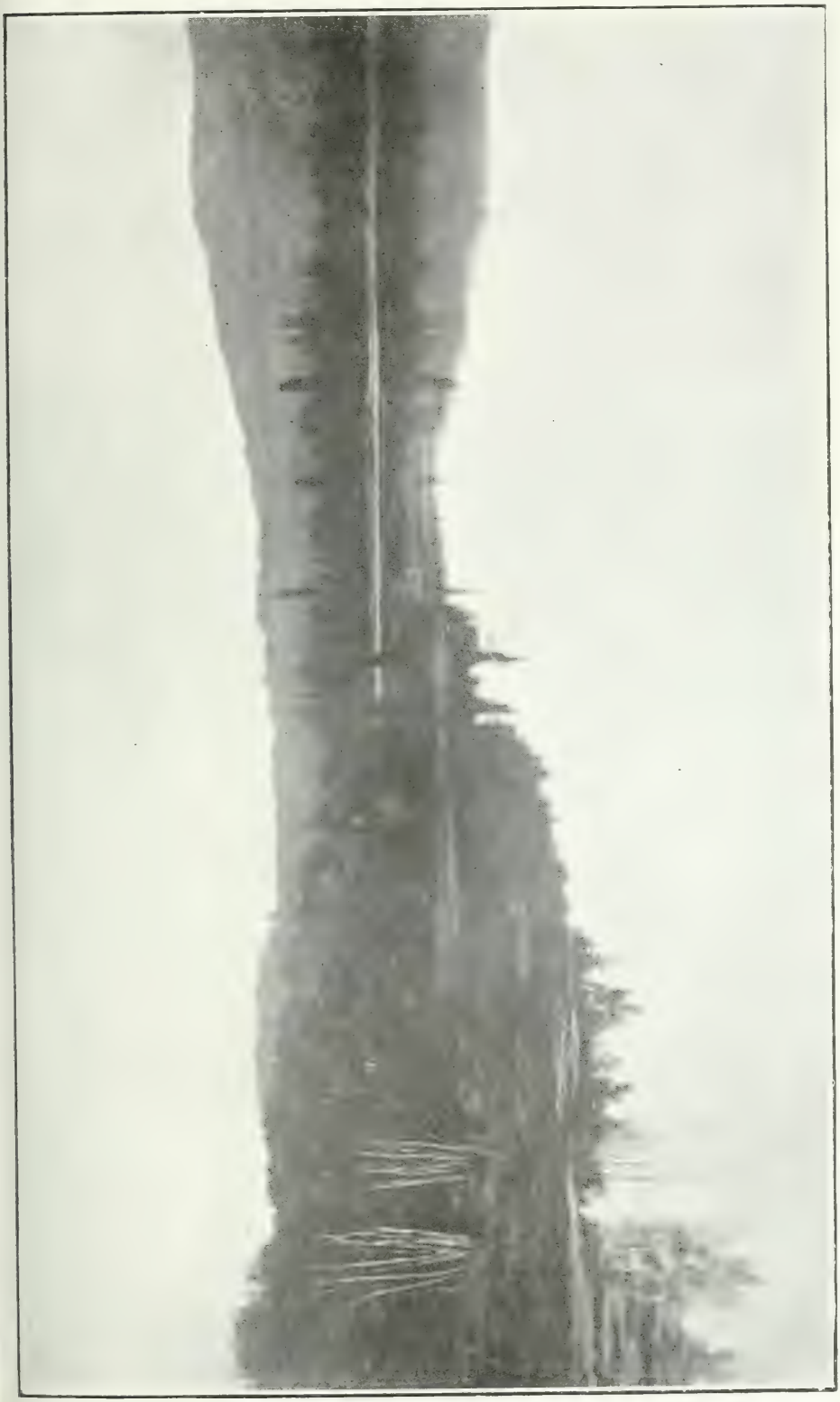
2. The Contractor will supply and provide all and every kind of work, labour, materials, articles and things whatsoever necessary for the due construction and completion, and will well and duly build and complete in a perfect and workmanlike manner as far as can be completed at the works of the Contractor, one 40 ft. through plate girder span for bridge at Mileage 48.91 of the Railway of the Commission, in strict compliance with the 1908 general specifications of the Department of Railways and Canals as to material and workmanship and Class Heavy loading of the same specifications as to strength, except so far as such 1908 general specifications of the Department of Railways and Canals are modified by the general specifications hereto annexed, and in strict compliance with the general specifications hereto annexed and with the plans relating to the said structure, and to the complete satisfaction of the Engineer as to material and workmanship of the structure and to the due completion thereof, it being understood that the said work shall include the painting of the structure with one coat of approved paint at the shops of the Contractor, and will deliver said span complete on the tracks of the Commission at North Bay f.o.b. cars, on or before the first day of July, 1910, time being agreed to be material and of the essence of this contract.

3. The Engineer shall be the sole judge of the material and workmanship, used in the said structure and of the due completion thereof, and his decision on all questions in dispute with regard to such material and workmanship, or with regard to the completion of said structure, shall be final, and same shall be executed to his satisfaction as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid for said work.

4. The Engineer and all persons from time to time authorized by him on his behalf shall have free entry and access to the works of the Contractor at all times while this contract is being performed and shall have all reasonable facilities afforded him and his representatives as aforesaid to satisfy them that same is being carried out and performed in accordance with this contract.

5. All portions of the structure to be manufactured under this contract shall be weighed and loaded on cars in presence of the Engineer or Inspector, and if any material is weighed upon the cars, such cars, including all blocking to be used in supporting the steel work thereon, must similarly be weighed in the presence of the Engineer or Inspector before being loaded, and the certificate in writing of the Engineer or Inspector certifying to the correctness of all weights of goods charged for hereunder shall be a condition precedent to the right of the Contractor to be paid for said work.

6. The Commission in consideration of the premises covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractor's part entitled to be fulfilled and performed will be paid for and in respect of the said work the sum of $2.35 per hundred pounds weight of such span, provided that the scale weight shall not exceed by more than two per cent. the total weight as computed from the plans, and that in no case shall the Commission be liable for any sum in respect of the weight, if any, of the said span in excess of two per cent. above



Otto Lake.

such computed weight, seventy-five per cent. of said purchase price to be paid upon delivery of the said span on board cars at the works of the Contractor at Hamilton and the balance within thirty days after delivery of the said span on the tracks of the Commission at North Bay, f.o.b. cars, on presentation of the invoice and certificate of the Engineer.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and the hands of the proper officers in that behalf.

THE HAMILTON BRIDGE WORKS CO., LIMITED.
(Seal)

(Sgd.) EDITH DEAN.

(Sgd.) R. M. ROY, *Manager.*

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.
(Seal)

(Sgd.) J. L. ENGLEHART, *Chairman.*
A. J. MCGEE, *Secy.-Treas.*

(Sgd.) B. L. THOMPSON.

Double Tracking—Cobalt to North Cobalt.

Tenders were received for above as follows:

Material.	Amount.	Rate.	R. J. McGar, Amount.	Rate.	P. O'Donnell, Amount.
Rock	5,000 cubic yards ..	$2 00	$10,000 00	$2 25	$11,250 00
Loose rock	1,000 " " ..	90	900 00	65	650 00
A.O.M.	4,500 " " ..	50	2,250 00	45	2,025 00
Grubbing	75 acres	75 00	56 25	125 00	93 75
Overhaul	15,000 cubic yards ..	02	310 00	01	155 00
Rip-rap	135 " " ..	1 25	168 75	75	101 25
			$13,685 00		$14,275 00

Contract awarded to R. J. McGar.

ARTICLES OF AGREEMENT made in duplicate the 28th day of February in the year of our Lord, one thousand nine hundred and ten.

BETWEEN:

S. J. McGAR, of the Town of Cobalt, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall unless the context requires a different meaning mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The Contractor will at his own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion and will well and duly construct and complete in perfect and workmanlike manner the work of grading for second track for the Commission from Cobalt to North Cobalt, and all other matters and things referred to or set out in the annexed specifications or otherwise in the opinion of the Engineer necessary for completing the work referred to in the said specifications, all of which work shall be done in strict compliance with the said specifications and with the plans and drawings relating thereto and to the complete satisfaction of the Engineer and will deliver the said work to the Commission complete to the satisfaction of the Engineer on or before the First day of June A.D., 1910, time being agreed to be material and of the essence of this contract.

3. The Contractor shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work including extras and alterations and notwithstanding any delay or hindrance by the Commission or by any other person or persons whomsoever to the satisfaction of the Engineer by the date set out in the last preceding paragraph or by such other date as on the written application of the Contractor for an extension of time the Engineer may in writing substitute and in default shall pay to the Commission by way of liquidated damages the sum of Ten dollars for each day which shall or may elapse after the date mentioned in the last preceding paragraph or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole shall be so completed and delivered.

4. The Engineer shall be at liberty at any time either before the commencement or during the construction of the works or any portion thereof to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof or any other matter connected with the works whether or not such changes, increase or diminish the work to be done or the cost of doing the same and the Contractor shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and shall complete the work so ordered to be done within the time specified by the Engineer but the Contractor shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation, or extra work shall have been first directed in writing by the Engineer and notified to the Contractor and the decision of the Engineer as to whether such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractor or deducted from the Contractor in respect of any such increase or diminution shall be final and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as to the work tendered for and no changes, additions, deviations, or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractor for any loss of anticipated profits or for any other matter or thing in respect of or in consequence of any change or deviation in or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision upon all matters in dispute in respect to work and material shall be final and no works or extra or additional works or changes shall be deemed to have been executed nor shall the Contractor be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as

evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor. It is further expressly agreed that the Engineer shall be the sole and final judge of all differences or disputes which shall or may at any time arise as to the meaning or true construction of the said specifications or of any of the plans relating thereto, or of these presents, and his decision in reference to any and all such disputes and differences shall be absolutely final and binding and conclusive upon the parties.

6. The Contractor shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission and if any such loss or damage occur before such completion, delivery and acceptance, the Contractor shall immediately at his own expense repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof shall be completed within the time hereby limited.

7. The Contractor shall not at any time in connection with said work or any matter arising out of or connected with this contract employ any person or persons in contravention of the Alien Labour Act, or the provisions of the Railway Act of Ontario respecting the employment of alien labour and shall pay to all workmen, labourers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, labourers and servants engaged in similar occupations in the district in which said work shall be performed and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause, and in the event of the Commission, who shall be the sole absolute and final judge of these matters, being satisfied at any time that the Contractor or any sub-contractor has been guilty of any violation of any of the provisions of this clause the Commission shall have the right from time to time and as often as it shall be satisfied that any such violation has taken place to withhold all payments from the Contractor until any such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractor until the Commission shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. The Commission shall be entitled to retain as security for the due performance and completion of this contract by the Contractor the sum of Five Hundred dollars cash paid by the Contractor with his tender for the said work in addition to which the Commission shall be entitled to retain as further security for the due completion and execution of this contract the further sum of Two Thousand dollars out of the moneys covered by the first progress estimate in Contractor's favor.

9. The Commission in consideration of the premises covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractor's part intended to be fulfilled and performed, will be paid for and in respect of the said work on the basis of the following unit prices, that is to say: $75.00 per acre for grubbing, $2.00 per cubic yard for solid rock excavation; 90 cents per cubic yard for loose rock excavation, 50 cents per cubic yard for all other material excavation, and $1.25 per cubic yard for rip rap; all as certified by the Engineer subject to such deductions or additions as shall be certified by the Engineer, payments to be made from time to time on progress certificates of the Engineer equal to about

ninety per cent. of the value of the work done approximately made up from the returns of progress measurements and computed at said unit prices, and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of the said work.

10. It is intended that every allowance to which the Contractor shall be fairly entitled will be embraced in the Engineer's monthly certificates; but should the Contractor at any time have claims of any description which he considers are not included in the progress certificates it will be necessary for him to make such claims in writing to the Engineer within thirty days of the date of the despatch to the Contractor of each certificate in which he alleges such claims to have been omitted.

11. The Contractor in presenting any such claims alleged to have been omitted as provided by the last preceding paragraph hereof must accompany same with satisfactory evidence of their accuracy and of the reason why the Contractor shall consider same should be allowed. Unless such claims are thus made during the progress of the work within thirty days as provided in the last preceding paragraph the Contractor shall be forever shut out in respect thereof and shall have no claim on the Commission in the premises.

12. It is distinctly agreed that no implied contract of any kind whatsoever, by or on behalf of the Commission shall arise or be implied from anything contained in this contract, including the said specifications, plans and drawings, for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings are and shall be the only contract, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded, it being further expressly agreed however, that the said specifications and these presents are to be read together and in case of any discrepancy between these presents and anything contained in the said specifications the provisions of these presents shall govern and in case of any discrepancy appearing at any time between the specifications, plans and drawings, or any of them, the Contractor shall follow such one of them as the Engineer shall in writing direct.

IN WITNESS WHEREOF this agreement has been duly executed by the Contractor under his hand and seal and by the Commission under its corporate seal and the hands of the proper officers in that behalf.

SIGNED, SEALED AND DELIVERED
In the presence of

S. McGAR (*Seal*).

TEMISKAMING AND NORTHERN ONTARIO
RAILWAY COMMISSION. (*Seal*).

(Sgd.) B. L. THOMPSON.

(Sgd.) J. L. ENGLEHART, *Chairman.*

A. J. McGEE, *Sec'y.-Treas.*

Sixth Avenue, Cochrane.

50,000 Gallon Steel Tank.

Tenders were received for above as follows:

Name.	Address.	Price.
John Inglis Co.	Toronto	$3,500 00
The Rock Wood Sprinkler Co.	Montreal	3,650 00
Collingwood Shipbuilding Co.	Collingwood	4,300 00
Canada Foundry Co.	Toronto	4,750 00
Ontario Wind Engine and Pump Co.	Toronto	4,840 00
Polson Iron Works, Limited	Toronto	7,800 00

Contract awarded to John Inglis Co., their tender being lowest.

ARTICLES OF AGREEMENT made in duplicate this 28th day of June, in the year of our Lord, one thousand nine hundred and ten.

BETWEEN THE JOHN INGLIS COMPANY, LIMITED, hereinafter called the Contractor, and THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "Engineer" shall mean the Chief Engineer for the time being of the Commission and the word "Inspector" shall mean the Inspector for the time being appointed by such Chief Engineer to represent and act for the Commission in the supervision of the construction and completion of the work herein contracted for.

2. The contractor will supply and provide all and every kind of work, labour, materials, articles, and things whatsoever necessary for the due construction and completion and will well and duly build, erect and complete in a perfect and workmanlike manner one fifty-thousand Imperial gallon steel tank for use on the Commission's line of Railway at or adjoining North Bay Junction in strict compliance with the specifications hereto annexed and with the plans relating to the said structure, and to the complete satisfaction of the Engineer as to material and workmanship of the structure and as to the due completion thereof, and will deliver the same complete to the Commission within sixty days after the approval by the Engineer of the working plans, time being agreed to be material and of the essence of this contract.

3. The Engineer shall be the sole judge of the material and workmanship used in the said structure and of the due completion thereof and his decision on all questions in dispute with regard to such material and workmanship or with regard to the completion of the said structure shall be final and same shall be executed to his satisfaction as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the contractor to be paid for said work.

4. The Engineer and all persons from time to time authorized by him on his behalf shall have free entry and access to the works of the contractor at all times while this contract is being performed and shall have all reasonable facilities afforded him and his representatives as aforesaid to satisfy them that same is being carried out and performed in accordance with this contract.

5. Neither the acceptance of nor payment for the said structure by the Commission shall relieve the Contractor from any liability assumed by the Contractor under this contract.

6. The Commission in consideration of the premises covenants with the Contractor that the Contractor from time to time, in all respects having fulfilled and performed the provisions of this contract on the Contractor's part to be fulfilled and performed will be paid for and in respect of the said work the sum of thirty-five hundred dollars, fifty per cent. thereof upon delivery of the said tank, including all fixtures, upon the foundations at the site on which same is to be erected, and the balance within thirty days after the completion of the said work and the presentation by the Contractor of the certificate of the Engineer certifying to such completion to his satisfaction as above provided.

IN WITNESS WHEREOF the parties have caused these presents to be executed under their respective corporate seals and the hands of the proper officers in that behalf.

(Sgd.) C. H. FIEDHILLER.

THE JOHN INGLIS CO., LIMITED.
(Seal)
(Sgd.) WM. INGLIS, *President.*

(Sgd.) B. L. THOMPSON.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.
(Seal)

(Sgd.) J. L. ENGLEHART, *Chairman.*
(Sgd.) A. J. MCGEE, *Sec.-Treasurer.*

Enlargement of Cobalt Station Grounds.

Tenders for above were received as follows:

H. G. Young, Cobalt, Ont.

Loose Rock Excavation	.90	per	Cubic	Yard.
Solid " "	2.50	"	"	"
All other Material	.90	"	"	"

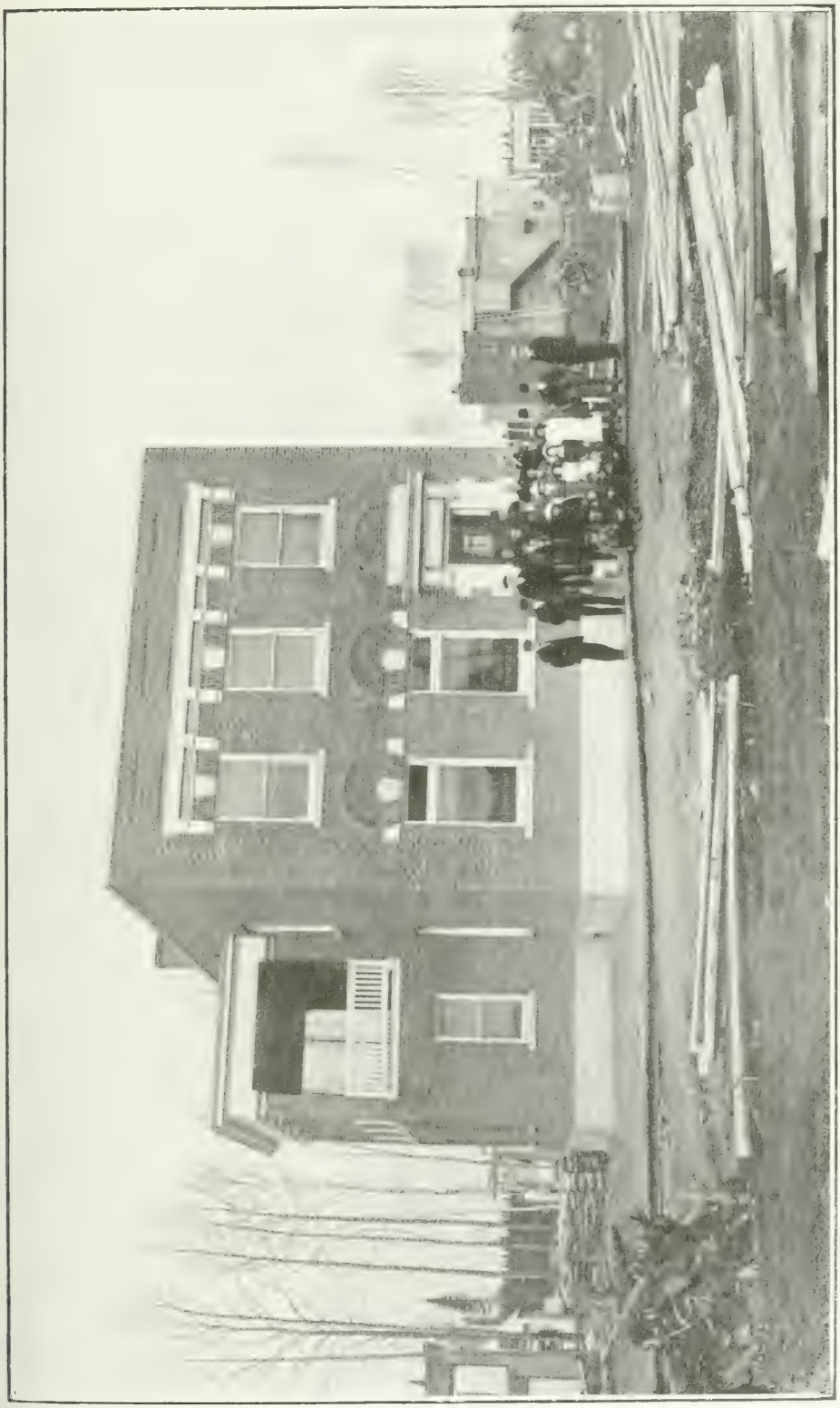
Canadian Contracts Limited, Toronto.

Loose Rock Excavation	1.05	"	"	"
Solid " "	1.95	"	"	"
All other Material	.43	"	"	"

Tender received from John McLeod, Toronto, but same not accompanied by accepted cheque, and was not considered. His prices were as follows:

Loose Rock Excavation	1.50	per	Cubic	Yard.
Solid " "	2.50	"	"	"
All other Material	.43	"	"	"

Contract awarded to Canadian Contracts Limited, their tender being lowest.
Tenders for above were received as follows:



Bank of Ottawa—Cochrane.

MEMORANDUM OF AGREEMENT made in duplicate the 15th day of February, in the year of our Lord one thousand nine hundred and ten.

BETWEEN:

CANADIAN CONTRACTS, LIMITED, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "Work" or "Works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The Contractor will at its own expense provide all and every kind of work, labour, materials, articles and things whatsoever in connection with the grading necessary for the construction of additional tracks, sidings and roadways in the Cobalt station grounds of the Commission and will well and truly complete in perfect and workmanlike manner such grading and all other matters and things referred to or set out in the annexed specifications or otherwise in the opinion of the Engineer necessary for completing said work, all of which work shall be done in strict compliance with the said specifications and with the plans and drawings relating thereto and to the complete satisfaction of the Engineer, and will deliver the said work to the Commission complete to the satisfaction of the Engineer on or before the last day of June, A.D. 1910, time being agreed to be material and of the essence of this contract.

3. The Contractor shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work including extras and alterations and notwithstanding any delay or hindrance by the Commission or by any other person or persons whomsoever to the satisfaction of the Engineer by the date set out in the last preceding paragraph or by such other date as on the written application of the Contractor for an extension of time the Engineer may in writing substitute, and in default shall pay to the Commission by way of liquidated damages the sum of Ten dollars for each day which shall or may elapse after the date mentioned in the last preceding paragraph, or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be so completed and delivered.

4. The Engineer shall be at liberty at any time either before the commencement or during the construction of the works, or any portion thereof, to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof, or any other matter connected with the works, whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the Contractor shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and shall complete the work so ordered to be done within the time specified by the Engineer, but the Contractor shall not make any change in or addition to or omission or deviation from the work, and shall not be entitled to any payment for any change, addition, deviation or any

extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Engineer and notified to the Contractor and the decision of the Engineer as to whether such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractor or deducted from the Contractor in respect of any such increase or diminution shall be final, and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner, and to the same extent as to the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractor for any loss of anticipated profits or for any other matter or thing in respect of or in consequence of any change or deviation in or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision upon all matters in dispute in respect to work and material shall be final, and no works or extra or additional works or changes shall be deemed to have been executed nor shall the Contractor be entitled to payment for the same unless the same shall have been directed in writing as heretofore provided and executed to the satisfaction of the Engineer, as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor. It is further expressly agreed that the Engineer shall be the sole and final judge of all differences or disputes which shall or may at any time arise as to the meaning or true construction of the said specifications or of any of the plans relating thereto, or of the said tender or of these presents, and his decision in reference to any and all such disputes and differences shall be absolutely final and binding and conclusive upon the parties.

6. The Contractor shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission, and if any such loss or damage occur before such completion, delivery and acceptance the Contractor shall immediately at its own expense, repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof shall be completed within the time hereby limited.

7. The Contractor shall not at any time in connection with said work or any matter arising out of or connected with this contract, employ any person or persons in contravention of the Alien Labour Act, or the provisions of the Railway Act of Ontario respecting the employment of alien labour, and shall pay to all workmen, labourers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, labourers and servants engaged in similar occupations in the district in which said work shall be performed and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause, and in the event of the Commission, who shall be the sole, absolute and final judge of these matters being satisfied at any time that the Contractor or any sub-contractor has been guilty of any violation of any of the provisions of this clause the Commission shall have the right from time to time and as often as it shall be satisfied that any such violation has taken place, to withhold all payments from the Contractor until any such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractor

until the Commission shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. The Commission shall be entitled to retain as security for the due performance and completion of this contract by the Contractor the sum of one thousand dollars cash, paid by the Contractor with its tender for said work in addition to which the Contractor shall upon the execution hereof furnish further security for the due completion and execution of this contract by bond in form approved by the Commission and with surety approved by the Commission to the amount of nine thousand dollars.

9. The Commission in consideration of the premises, covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractor's part intended to be fulfilled and performed, will be paid for and in respect of the said work the amount payable therefor on the basis of the unit prices set out in the annexed copy of tender of the Contractor, all as certified by the Engineer, subject to such deductions or additions as shall be certified by the Engineer: payments to be made from time to time on the progress certificates of the Engineer equal to about ninety per cent. of the value of the work done approximately made up from the returns of progress measurements and computed at said unit prices, and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of the said work.

10. It is intended that every allowance to which the Contractor shall be fairly entitled will be embraced in the Engineer's monthly certificates; but should the Contractor at any time have claims of any description which it considers are not included in the progress certificates it will be necessary for it to make such claims in writing to the Engineer within thirty days of the date of the despatch to the Contractor of each certificate in which it alleges such claims to have been omitted.

11. The Contractor in presenting any such claims alleged to have been omitted as provided by the last preceding paragraph hereof must accompany same with satisfactory evidence of their accuracy and of the reason why the Contractor shall consider same should be allowed. Unless such claims are thus made during the progress of the work within thirty day as provided in the last preceding paragraph the Contractor shall be forever shut out in respect thereof, and shall have no claim on the Commission in the premises.

12. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract, including the said specifications, plans and drawings or the tender of the said Contractor for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings are and shall be the only contract, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded, it being further expressly agreed, however, that the said specifications and these presents are to be read together and in case of any discrepancy between these presents and anything contained in said specifications the provisions of these presents shall govern, and in case of any discrepancy appearing at any time between the specifications, plans and drawings, or any of them, the Contractor shall follow such one of them as the Engineer shall in writing direct.

View of Cochrane.

IN WITNESS WHEREOF this agreement has been duly executed by the said parties under their respective corporate seals and the hands of their proper officers in that behalf.

(Sgd.) W. A. LAMPORT, *President.*
(Sgd.) C. H. MORTIMER, *Secretary.*
(Seal)
TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION
(Sgd.) J. L. ENGLEHART, *Chairman.*
(Sgd.) A. J. McGEE, *Sec.-Treasurer.*
(Seal)

(Sgd.) B. L. THOMPSON.

TENDERS FOR STANDARD No. 3 SECTION HOUSES AND BACHELOR SECTION HOUSES.

Tenders for above were received as follows:

Standard No. 3 Section Houses.

	Snyder & Robertson.		Cobalt Equip Co.		L. C. Wideman	
	Unit Price.	Toronto.	Unit Price.	Toronto.	Unit Price.	Total.
Excavation, 150 cu yd.....	75	$112 50	60	$90 00	1 00	150 00
Concrete, 60 cu. yd.....	10 00	600 00	13 00	780 00	10 00	600 00
Section house above foundation, including outhouse...	.....	1,885 00	.....	1,825 00	.....	2,337 00
Tool house complete.....	.....	220 00	.....	200 00	.....	185 00
		2,817 50		2,895 00		3,272 00

Bachelor Section Houses.

Concrete, 3 cu. yd.....	10 00	30 00	13 00	39 00	10 00	30 00
Lump sum price.....	.....	975 00	.....	850 00	.....	1,247 00
	.....	1,005 00	.....	889 00	.....	1,277 00

Contract for construction of Section Houses awarded to Messrs. Snyder and Robertson, North Bay, and for Bachelor Section Houses to Cobalt Electric Equipment Co., their tenders being lowest.

ARTICLES OF AGREEMENT made in triplicate this 19th day of September in the year of Our Lord, one thousand nine hundred and ten.

BETWEEN:

WILLIAM N. SNYDER and JOHN ROBERTSON, of the Town of North Bay, hereinafter called the Contractors.

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The contractors will at their own expense provide all and every kind of work, labour, materials, articles and things whatsoever for the due construction and completion and will well and duly build and complete in a perfect and workmanlike manner three standard section and tool houses at or adjoining the stations at Gillies Depot, Uno Park and Charlton respectively, on the line of Railway of the Commission in such positions as the Engineer may direct in strict compliance with the specifications hereto annexed and with the plans and tracings relating thereto and to the complete satisfaction of the Engineer and will deliver the said section houses complete to the Commission on or before the first day of October, 1910, time being agreed to be material and of the essence of this contract.

3. The contractor shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work including extras and alterations and notwithstanding any delay or hindrance by the Commission to the satisfaction of the Engineer by the date set out in the last preceding paragraph or by such other date as on the written application of the contractors for an extension of time the Engineer may in writing substitute, and in default shall pay to the Commission by way of liquidated damages the sum of five dollars for each of the section and tool houses for each day which shall or may elapse after the date mentioned in the last preceding paragraph or the date expressly substituted therefor in manner aforesaid by the Engineer until the said section and tool houses respectively shall be so completed and delivered.

4. The Engineer shall be at liberty at any time either before the commencement or during the construction of the works or any portion thereof to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof or in any other things connected with the works whether or not such changes increase or diminish the work to be done or the cost of doing the same and the contractor shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the contractors shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation, or extra work shall have been first directed in writing by the Engineer and notified to the Contractors and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractors or deducted from the Contractors in respect of any such increase or diminution shall be final and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as to the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractors for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

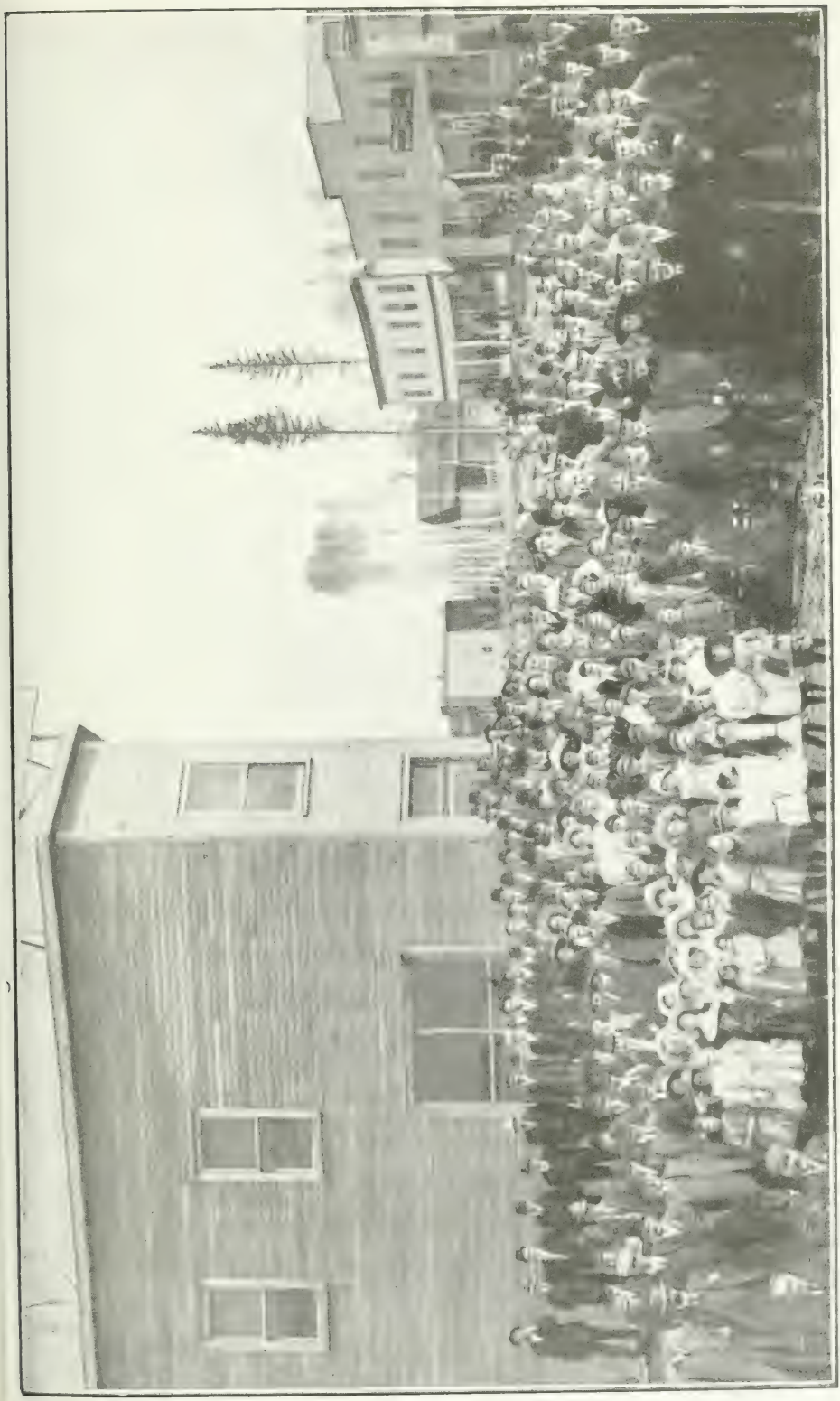
5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision on all matters in dispute in respect to work and material shall be final, and no works or extra or additional works or changes shall be deemed to have been executed, nor shall the contractors be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided, and executed to the satisfaction of the Engineer as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractors to be paid therefor.

6. The Contractors shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission, and if any such loss or damage occur before such completion, delivery and acceptance, the Contractors shall immediately at their own expense repair, restore and re-execute the work so damaged, so that the whole works or the respective parts thereof will be completed within the time hereby limited.

7. The Contractor shall not at any time in connection with said work, or any matter arising out of or connected with this contract, employ any person or persons in contravention of the Alien Labour Act or the provisions of the Railway Act of Ontario respecting the employment of alien labour, and shall pay to all workmen, labourers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, labourers and servants engaged in similar occupations in the district in which said work shall be performed and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause, and in the event of the Commission, who shall be the sole, absolute and final judge of these matters, being satisfied at any time that the contractors or any sub-contractors have been guilty of any violation of any of the provisions of this clause, the Commission shall have the right from time to time, and as often as it shall be satisfied that any such violation has taken place, to withhold all payments from the Contractors until any such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractors until the Commission shall be satisfied that such violation has ceased, and until such amends shall have been made to the satisfaction of the Commission as aforesaid.

8. The Commission in consideration of the premises covenants with the Contractors that the Contractors from time to time, and in all respects having fulfilled and performed the provisions of this contract on the Contractors part intended to be fulfilled and performed, will be paid for and in respect of the said work One thousand eight hundred and eighty-five dollars ($1,885.00), in respect of each section house and Two hundred and twenty dollars ($220.00) in respect of each tool house, together with Four dollars ($4.00) per cubic yard for solid rock excavation, One dollar ($1.00) per cubic yard for loose rock excavation, and seventy five cents (.75) per cubic yard for all other material excavation, and Ten dollars ($10.00) per cubic yard for concrete, all as certified by the Engineer, subject to such deductions or additions as shall be certified by the Engineer, payments to be made from time to time on progress certificates of the Engineer, and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of said contract.

9. It is distinctly agreed that no implied contract of any kind whatsoever by



School children, Cochrane, and members of Canadian Press Association.

or on behalf of the Commission shall arise or be implied from anything contained in this contract, including the said specifications, plans and drawings, or the tender of the said Contractors for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings are and shall be the only contracts, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded; it being further expressly agreed that the said specifications and these presents are to be read together, and in case of any discrepancy between these presents and anything contained in such specifications, the provisions of these presents shall govern, and in case of any discrepancy appearing at any time between the specifications, plans and drawings, or any of them, the Contractors shall follow such one of them as the Engineer shall in writing direct.

AS WITNESS the hands and seals of the said Contractors and the corporate seal of the Commission under the hands of the proper officers in that behalf.

(Sgd.) WM. N. SNYDER. (Seal)
JOHN ROBERTSON. (Seal)

(Sgd.) R. I. HARRIS.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION. (Seal)

(Sgd.) J. L. ENGLEHART, *Chairman.*
A. J. MCGEE, *Secy.-Treas.*

(Sgd.) B. L. THOMPSON.

ARTICLES OF AGREEMENT made in duplicate this 31st day of May, in the year of our Lord, one thousand nine hundred and ten.

BETWEEN:

COBALT ELECTRIC EQUIPMENT COMPANY, LIMITED, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall unless the context requires a different meaning mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being of the Commission.

2. The Contractor will at its own expense provide all and every kind of work, labour, materials, articles and things whatsoever for the due construction and completion and will well and truly build and complete in a perfect and workmanlike manner three section houses at or adjoining Redwater, Bushnell and Temagami stations on the line of railway of the Commission in such positions as the Engineer may direct in strict compliance with the specifications hereto annexed and

with the plans and drawings relating thereto and to the complete satisfaction of the Engineer, and will deliver the said section houses complete to the Commission on or before the fifteenth day of August, 1910, time being agreed to be material and of the essence of this contract.

3. The Contractor shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work including extras and alterations and notwithstanding any delay or hindrance by the Commission to the satisfaction of the Engineer by the date set out in the last preceding paragraph or by such other date as on the written application of the Contractor for an extension of time the Engineer may, in writing substitute, and in default shall pay to the Commission by way of liquidated damages the sum of Five Dollars, in respect of each of said section houses, for each day which shall or may elapse after the date mentioned in the last preceding paragraph or the date expressly substituted therefor in manner aforesaid by the Engineer until the said section houses respectively shall be so completed and delivered.

4. The Engineer shall be at liberty at any time either before the commencement or during construction of the works or any portion thereof to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location, or position of the works or any part or parts thereof or in any other things connected with the works whether or not such changes increase or diminish the work to be done or the cost of doing the same and the Contractor shall immediately comply with all requisitions of the Engineer in that behalf, and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the Contractor shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any extra work, unless such change, addition, omission, deviation, or extra work shall have been first directed in writing by the Engineer and notified to the Contractor and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractor or deducted from the Contractor in respect of any such increase or diminution shall be final and all the provisions of this contract shall apply to any changes, additions, deviations, or extra work in like manner and to the same extent as to the work tendered for and no changes, additions, deviations, or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractor for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality and his decision on all matters in dispute in respect to work and material shall be final and no works or extra or additional works or changes shall be deemed to have been executed nor shall the Contractor be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

6. The Contractor shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission and if any such loss or damage occur before such completion, delivery and acceptance the Contractor shall immediately at his own expense repair, restore, and re-execute the

work so damaged so that the whole works or the respective parts thereof will be completed within the time hereby limited.

7. The Contractor shall not at any time in connection with said work or any matter arising out of or connected with this contract employ any person or persons in contravention of the Alien Labour Act or the provisions of the Railway Act of Ontario respecting the employment of Alien Labour and shall pay to all workmen labourers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, labourers and servants engaged in similar occupations in the district in which said work shall be performed and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause and in the event of the Commission, who shall be the sole, absolute and final judge of these matters, being satisfied at any time that the Contractor or any sub-Contractor has been guilty of any violation of any of the provisions of this clause the Commission shall have the right from time to time and as often as it shall be satisfied that any such violation has taken place to withhold all payments from the Contractor until any such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractor until the Commission shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. The Commission shall be entitled to hold as security for the due performance and completion of this contract by the Contractor the sum of Three Hundred Dollars cash deposit made by the Contractor with the Commission prior to the execution of this contract.

9. The Commission in consideration of the premises, covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractor's part intended to be fulfilled and performed will be paid for and in respect of the said work the sum of Eight Hundred and Fifty Dollars for each section house complete, including outhouse, together with Two Dollars per cubic yard for rock excavation; 75 cents per cubic yard for loose rock excavation, sixty cents per cubic yard for all other material excavation and Thirteen Dollars per cubic yard for concrete, all as certified by the Engineer, subject to such deductions or additions as shall be certified by the Engineer, payments to be made from time to time on progress certificates of the Engineer and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of the said contract.

10. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract, including the said specifications, plans and drawings, or the tender of the said Contractor for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings, are and shall be the only contracts, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded; it being further expressly agreed that the said specifications and these presents are to be read together and in case of any discrepancy between these presents and anything contained in such specifications, the provisions of these presents shall govern and in case of any discrepancy ap-

pearing at any time between the specifications, plans and drawings, or any of them the Contractor shall follow such one of them as the Engineer shall in writing direct.

AS WITNESS the corporate seals of the said parties under the hands of the proper officers in that behalf.

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.
J. L. ENGLEHART, *Chairman.*
A. J. MCGEE, *Secretary-Treasurer.* (Seal).

COBALT ELECTRIC EQUIPMENT CO., LTD.
E. P. CLARKSON, *Managing Director.* (Seal).

---

12 Cinder Cars.

Tenders were received for above as follows:

Name.	Price.
Dominion Car and Foundry Co., f.o.b., North Bay Jct. With an allowance of $97.75 for specialities if supplied by Commission	$1,495 00
Hart Otis Car Co., Montreal, f.o.b., North Bay Jct.	1,510 10

Contract awarded to Dominion Car and Foundry Co., their tender being lowest.

ARTICLES OF AGREEMENT made in duplicate this 12th day of February, in the year of our Lord one thousand nine hundred and nine.

BETWEEN

THE DOMINION CAR AND FOUNDRY COMPANY, LIMITED, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "Inspector" shall mean the Inspector for the time being appointed by the Commission to act for the Commission in the supervision of the construction and in the inspection and certification of the cinder cars hereinafter referred to.

2. The Contractor will supply and provide all and every kind of work, labour, materials, articles and things whatsoever for the due construction and completion, and will well and duly build and complete in a perfect and workmanlike manner twelve cinder cars, with all necessary appliances, for use on the line of Railway of the Commission, in strict compliance with the specifications hereto

annexed and with the plans and drawings relating thereto (save and except that the Westinghouse air brake apparatus, the journal bearings, the McCord journal boxes, the steel back brake shoes, the Harrison dust guards, the miner draft rigging and the tower couplers, mentioned in said specifications, shall be furnished by the Commission, subject to the said cars being duly equipped therewith by the Contractor, as provided for by said specifications), to the complete satisfaction of the Inspector, and the Contractor will deliver the said cinder cars duly completed to the Commission free on the railway tracks of the Commission at the town of North Bay on or before the first day of March, 1910, time being agreed to be material and of the essence of this contract, and in default of such delivery within the time aforesaid the Contractor will pay to the Commission by way of liquidated damages the sum of Ten Dollars in respect of each car for each day which may elapse after the date aforesaid before delivery of said cars respectively, which sums the Commission is authorized to deduct from the purchase price hereinafter mentioned; provided, however, that such damages shall not be recoverable in respect of any delays occasioned by strikes, accidents, delays of other carriers, or other delays which are unavoidable or beyond the control of the Contractor.

3. The Contractor shall within fifteen days from the date hereof deliver to the Master Mechanic of the Commission at his office in North Bay two complete sets of blue prints of said cinder cars, and in case same shall in any respect be found not to conform with the specifications the Contractor will promptly, on defects being pointed out, rectify same and supply to the Commission correct copies.

4. The Inspector will be the sole judge of all work and material done and supplied under this contract and his decision on all questions in dispute with regard to any such work or material shall be final, and the whole work shall be executed to his satisfaction as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

5. The Inspector and all persons from time to time authorized by him in that behalf shall have free entry and access to the works of the Contractor at all times while this contract is being performed, and shall have all reasonable facilities afforded to him and his representatives as aforesaid to satisfy him that the same is being carried out and performed in accordance with this contract.

6. The acceptance of and payment for one or more of said cars by the Commission shall not be considered as any waiver of the obligations of the Contractor with reference to the others.

7. This contract shall not be considered as fully completed until the guarantee clause in the attached specifications respecting wheels, springs, axles, etc., have been fully complied with. The books kept in the office of the Master Mechanic of the Commission shall be taken as final and conclusive of the time the said wheels, springs, axles, etc., have lasted in service.

8. The Commission, in consideration of the premises, covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract (except the fulfilment of the guarantee which is to continue as shown in said specifications), on the Contractor's part intended to be fulfilled and performed, will be paid for and in respect of each of the said cinder cars the sum of One thousand three hundred and ninety-seven dollars and twenty-five cents, payments to be made within forty days after the delivery of each car.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and under the hands of the proper officials in that behalf.

A. H. CHAVE, *Secretary.*

DOMINION CAR AND FOUNDRY COMPANY, LIMITED.
W. W. BUTLER, *Vice-Pres.* (Seal).

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.
J. L. ENGLEHART, *Chairman.*
A. J. MCGEE, *Secretary-Treasurer.* (Seal).

---

50 Steel Underframe Box Cars.

Tenders were received for the above as follows:

Name.	Residence.	Price.
Crossen Car Manufacturing Co., Cobourg F.O.B., North Bay Junction	Cobourg	$1,372 50
Silliker Car Co., Halifax, F.O.B. North Bay Junction	Halifax	1,355 00
Preston Car & Coach Co., Preston, F.O.B. North Bay Junction	Preston, Ont.	1,435 69
Dominion Car & Foundry Co., Montreal, F.O.B., North Bay Junction	Montreal	1,265 00

With an allowance of $26.68 for specialties, if supplied by the Commission.

Tender of Dominion Car and Foundry Co. being lowest, contract awarded to them.

ARTICLES OF AGREEMENT made in duplicate this 12th day of February, in the year of our Lord one thousand nine hundred and ten.

BETWEEN

THE DOMINION CAR AND FOUNDRY COMPANY, LIMITED, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this Contract the word "Inspector" shall mean the Inspector for the time being appointed by the Commission to act for the Commission in the supervision of the construction and in the inspection and certification of the steel underframe box cars hereinafter referred to.

2. The Contractor will supply and provide all and every kind of work, labour, materials, articles and things whatsoever for the due construction and completion,

and will well and duly build and complete in a perfect and workmanlike manner fifty steel underframe box cars, with all necessary appliances for use on the line of Railway of the Commission, in strict compliance with the specifications hereto annexed and with the plans and drawings relating thereto (save and except that the Westinghouse air brake apparatus, the Harrison dust guards, the Improved Winslow roofing, the Security side and end door fixtures, the Tower couplers, the Journal bearings, the McCord journal boxes, the side door fasteners, the steel back brake shoes and the miner draft rigging mentioned in said specifications shall be furnished by the Commission, subject to the said cars being duly equipped therewith by the Contractor as provided for by said specifications), to the complete satisfaction of the Inspector, and the Contractor will deliver the said underframe box cars duly completed to the Commission free on the Railway tracks of the Commission at the town of North Bay on or before the first day of March, 1910, time being agreed to be material and of the essence of this contract, and in default of such delivery within the time aforesaid the Contractor will pay to the Commission by way of liquidated damages the sum of ten dollars in respect of each car for each day which may elapse after the date aforesaid before delivery of said cars respectively, which sums the Commission is authorized to deduct from the purchase price hereinafter mentioned; provided, however, that such damages shall not be recoverable in respect of any delays occasioned by strikes, accidents, delays of other carriers, or other delays which are unavoidable or beyond the control of the Contractor.

3. The Contractor shall within fifteen days from the date hereof deliver to the Master Mechanic of the Commission at his office in North Bay two complete sets of blue prints of said steel underframe box cars, and in case same shall in any respect be found not to conform with the specifications the Contractor will promptly, on defects being pointed out, rectify same and supply to the Commission correct copies.

4. The Inspector will be the sole judge of all work and material done and supplied under this contract and his decision on all questions in dispute with regard to any such work or material shall be final, and the whole work shall be executed to his satisfaction as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

5. The Inspector and all persons from time to time authorized by him in that behalf shall have free entry and access to the works of the Contractor at all times while this contract is being performed, and shall have all reasonable facilities afforded to him and his representatives as aforesaid to satisfy them that the same is being carried out and performed in accordance with this contract.

6. The acceptance of and payment for one or more of said cars by the Commission shall not be considered as any waiver of the obligations of the Contractor with reference to the others.

7. This contract shall not be considered as fully completed until the guarantee clause in the attached specifications respecting wheels, springs, axles, etc., have been fully complied with. The books kept in the office of the Master Mechanic of the Commission shall be taken as final and conclusive of the time the said wheels, springs, axles, etc., have lasted in service.

8. The Commission in consideration of the premises covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract (except the fulfilment of the guar-

antee, which is to continue as shown in said specifications), on the Contractor's part intended to be fulfilled and performed, will be paid for and in respect of each of the said steel underframe box cars the sum of One thousand one hundred and thirty-eight dollars and thirty-two cents, payments to be made within forty days after the delivery of each car.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and under the hands of the proper officers in that behalf.

DOMINION CAR AND FOUNDRY COMPANY, LIMITED.
W. W. BUTLER, *Vice-President.* (Seal).

A. H. CHAVE, *Secretary.*

TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION.
J. L. ENGLEHART, *Chairman.*
A. J. MCGEE, *Secretary-Treasurer.* (Seal).

INDEX.

	PAGE
Officials of T. & N. O. Railway	6
General Remarks	7
Insurance	8
Forestry	14
Agriculture	15
Auditors' Reports	17
Counsel's Report	19
Report of Chief Engineer	20
Surveys	20
Grade Reduction	20
Right of Way	21
Ballast Pits	21
Double Tracking	21
Cochrane Terminals	21
Water Supply	22
Sidings and Yards	22
Station Buildings	22
Section and Station Agents' Houses	24
Bridge Department	24
Comparative Table of Curvature	27
Report of Superintendent	29
Accidents	29
Report of Building Department	35
Terminals, North Bay Junction	36
Stations	36
Freight Sheds	38
Tanks, Dwellings, etc.	40
Expenditure	41
Report of Wm. Young, General Roadmaster	49
Ballast	49
Materials Handled by Work Trains	53
Broken and Defective Rails	55
Renewals of Rails	57
Ties	57
New Under Culverts	58
New Tile Drains	59
Roadways	59
Ditching	59
Land Slides	60
Public and Private Road Crossings Installed	60
Cattle Guards Installed	61
Widening of Cuts	62
Cross Logging	62
Rip-Rapping	62
Timber Bridges Filled	63
Construction of Wells	63
Ballasting and Resurfacing	64
Re-alignment of curves	65
Statement of Expenditure on Track	67
Report—Motive Power and Car Department	74
Locomotive Mileage	75
Repairs and Renewals to Locomotives	76
Smoke Box Nettings Examined	78
Repairs to Passenger Equipment	79

PAGE
Repairs to Freight Cars 80
Auxiliary and Work Equipment 81
Rolling Stock Destroyed 81
Electric Lighting Equipment 82
Rolling Stock and Equipment 83
Performance of Locomotives 84

Report of Dr. R. C. Lowrey 85
Report of Dr. A. McMurchy 85

Report of Mining Engineer 88
Silver Production of the Cobalt District 88
Silver Production of the World 88
Tabulated Statement of Shipments from Cobalt District for Calendar Year 1910 90
Statement of Shipments from Cobalt District for Years 1904 to 1910..... 92
Average Monthly Price of Silver 95
Mining Costs at Cobalt 97
Power Development 99
Coal Received in Cobalt 101
Concentration 101
Sampling 104
Flow Sheet—Buffalo Concentrator 105
" Cobalt Central Concentrator 106
" Colonial Concentrator 107
" Coniagas Concentrator 108
" King Edward Concentrator..... 109
" McKinley-Darragh Concentrator 110
" Nipissing Reduction Mill 111
" Northern Customs Concentrator 112
" Nova Scotia Concentrator 113
" O'Brien Concentrator 114
" Silver Cliff Concentrator 115
" Temiskaming Concentrator 116
" Trethewey Concentrator 117
" Hudson Bay 118
" Millerett Concentrator 119
" Reeves Dobie Concentrator 120
" Hollinger Mining Company's Mill..... 121
Freight Rates on Silver Ore 122
Application of Rates 123
Smelting of Cobalt Ores 123
Canadian Copper Co., Copper Cliff 125
Coniagas Reduction Co., Ltd. 127
Delora Mining and Reduction Co., Ltd..... 129
Canada Refining and Smelting Co. 130
Dominion Metals, Ltd. 130
Swansea Smelting and Refining Co. 132
American Smelting and Refining Co. 132
Balbach Smelting and Refining Co. 133
Beer, Sondheimer & Co. 133
Pennsylvania Smelting Co. 133
Quirk, Barton & Co. 135
United States Metals Refining Co. 135
Elk Lake District 135
Gowganda District 135
South Lorrain District 136
Porcupine 136

Financial Statements 143
General Balance Sheet 144
Profit and Loss 144
Statements showing amount expended on Construction, Additions and Betterments 145
Earnings and Expenses by Months 146

PAGE
Comparative Statement of Earnings and Expenses by Months 158
Townsite Accounts 180
Statement of Land Purchased by T. & N. O. Ry. 181
Tonnage Statistics 183
Traffic and Mileage Statistics 184
Average Wages 185
Equipment owned by Temiskaming and Northern Ontario Railway 186
Statement of Earnings and Expenses per Mile 187

Agreements 189
Algoma Steel Co.—Rails 189
Pacific Type Locomotives 190
Brake Shoes 193
Canada Railway News Co.—News Privileges 196
Changes of Alignment—M.P. 48-51, and 60-61 197
60,000 Tons of Coal 201
Widnoon Coal Mining Co. 202
Buffalo & Susquehanna Coal & Coke Co. 205
Parlor Cafe Cars 207
Abutments—M.P. 48.91 and 119.13 210
North Wabis Bridge 214
40 ft. Deck Plate Girder Span 217
Double Tracking—Cobalt to North Cobalt 220
50,000 Gallon Steel Tank 225
Grading Cobalt Station Grounds 226
Tenders for Standard Section and Bachelor Section Houses 232
Section Houses 236
Twelve Cinder Cars 239
Fifty Steel Underframe Box Cars 241

First and Second Annual Reports

OF THE

Hydro-Electric Power Commission

OF THE

PROVINCE OF ONTARIO

ENDING OCTOBER 31st, 1909.

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO
Printed and Published by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1910

Printed by
WILLIAM BRIGGS,
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TORONTO

To His Honour John Morison Gibson, K.C., LL.D.,

Lieutenant-Governor of Ontario.

May it Please Your Honour.

The undersigned has the honour to present to your Honour the First and Second Annual Reports of the Hydro-Electric Power Commission of Ontario, ending the 31st of October, 1909.

Respectfully submitted,

ADAM BECK,

Chairman.

Toronto, July 15, 1910.

The Honourable Adam Beck,

Chairman Hydro-Electric Power Commission,
Toronto, Ont.

Dear Sir:—

I have the honour to transmit herewith the First and Second Annual Reports of the Hydro-Electric Power Commission of Ontario, ending 31st of October, 1909, which contain engineering reports of P. W. Sothman, Chief Engineer, and copies of the Acts established and relating to the Commission up to that date, together with copies of Orders-in-Council, naming the members of the Commission.

I have the honour to be, Sir,

Your obedient servant,

W. W. POPE,

Secretary.

Toronto, July 15, 1910.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

HON. ADAM BECK, London, Chairman.

HON. JOHN S. HENDRIE, C.V.O., Hamilton, Commissioner.

W. K. McNAUGHT, ESQ., M.P.P., Toronto, Commissioner.

TABLE OF CONTENTS.

FIRST REPORT.

Page

Act of 1906 11
Act of 1907 17
Act of 1908 23
Act of 1909 305
Almonte Report *re* Power 158
Agreement May 4th, 1908, between Commission and the various municipalities 128
Bancroft Report *re* Power 146
Blind River Report *re* Power 153
Bruce Mines Report *re* Power 165

Construction of High Tension Transmission Line. ... ...

Instructions to Bidders attached to Specifications for Steel Transmission Towers 70
Instructions to Bidders attached to Specifications for Transmission Line Cable 72
Instructions to Bidders attached to Specifications for erection of High Tension Transmission Lines 74
Instructions to lump sum Bidders attached to tender for complete work..... 77
Advertisements for Bids 79

Tenders received for the above.

Transmission Towers 80
Transmission Line Cable 81
Erection of Transmission Line 81
Lump Sum Tenders 82

Estimates for Municipalities, 1908 135
Gas Producer Report 170
Hydraulic Reports, 1908 136
Hydrographic Survey for Canadian Manufacturers' Association, 1909 138

Insulators—High Tension.

Advertisements for Tenders 105
Instructions to Bidders attached to Specifications 105
Light and Power Rates throughout Canada 126, 127

McGuigan, F. H., Construction Co.

Agreement November 6th, 1908 82
Agreement November 25th, 1908 86
Agreement February 4th, 1909 87

Municipal Work, 1906 109
Massey Report *re* Power..... 142
North Bay Report *re* Power 167

Orders in Council.

January 25th, 1906 9
June 7th, 1906 10
February 28th, 1907 10

Ontario Power Co.

Agreement August 12th, 1907 57
Agreement March 8th, 1908 63

Ottawa.

By-law August 6th, 1907 109
Agreement with Commission, 1907 110
Agreement between Commission and Ottawa and Hull Power and Manufacturing Co 113
Letter from Electrical Commission dated September 3rd, 1908..... 118
Report of the Municipal Electrical Commission, 1908 121

Page

Peterboro' Report *re* Power 162
Report of P. W. Sothman 38
Renfrew Report *re* Power 169
Surveys, 1907 38
Surveys, 1908 52

Transformer Station Equipment.

Advertisements for Tenders 88
Instructions to Bidders attached to Specifications for Switching, Control and Protective Apparatus, etc., for Interswitching, Step-up and Step-down Transformer Stations 88
Instructions to Bidders attached to Specifications for 63,500 Volt Single Phase and 110,000 Volt 3-Phase Transformers 98

SECOND REPORT.

By-law Form 236
Cable Clamps and Sleeves (Form of Tender and Awards) 192
Conduit System at Niagara Falls 201
Copper Relay Wires, hard drawn, Tenders for 204
Cables (Submarine and Underground) for Telephone and Relay Circuits 204
Form of Tender attached to Specifications 205
Construction, Niagara District 207
Canadian General Electric Co., Agreement May 26th, 1909 219
Canadian Westinghouse Co., Agreement May 26th, 1909 223
Cranes for Transformer Stations, Specifications and Tenders 227
Dog Lake Storage 269
Electrical Equipment 218
Estimates for Power for various Municipalities 238-254
European Trip of Engineers 288
Electric Water Purification by Ozone 298
Heating Boilers, Specifications and Tenders 230
Huntsville Power Report 282

Insulators.

Tenders 182

Kaministiquia Light, Heat and Power Co.'s Agreement with Commission 299
Mechanical Equipment 227
Municipal Work 236
Meetings of Municipal Engineers 254-266
Mississippi Storage 273
Moira River Storage 284
Nipigon River Power 281
Ohio Brass Co.'s Agreement with Commission, April 29th, 1909 183
Oil Tanks, Specifications and Tenders 234
Pole Lines 197
Renfrew Report *re* Power 277
Station Buildings 210
Transmission Line Construction 174
Tower Tests 174
Telephone and Protective System 209
Transformer Station Construction 210
Underground Power Cables 199

FIRST ANNUAL REPORT

ENDING DECEMBER 31st, 1908.

Copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 26th Day of January, A.D. 1906

The Committee of Council have had under consideration the report of the Honourable the President of the Council, dated 25th January, 1906, wherein he states that on the 5th day of July, 1905, an Order-in-Council was passed under the provisions of "The Act respecting Inquiries Concerning Public Matters" (R.S.O., 1897, Cap. 19), appointing the Honourable Adam Beck, of the City of London, George Pattinson, of the Town of Preston, Esquire, and Philip William Ellis, Esquire, of the City of Toronto, Commissioners, to inquire into and report upon certain matters therein more particularly set out, and that the said Philip William Ellis has expressed his desire to resign from his position as a Commissioner under the aforesaid Commission.

The Committee advise that the resignation of the said Philip William Ellis be accepted, and that he be relieved from his duties under the said Commission, and that the said the Honourable Adam Beck, the said George Pattinson, and John Milne, of the City of Hamilton, Esquire, be appointed jointly and severally Commissioners to inquire into and report upon:—

1. The present and probable demand for hydraulic and electric power in the various districts capable of being supplied from the different water powers within the legislative jurisdiction of the Province of Ontario.

2. The location, capacity and capital cost of development of the various water powers within the legislative jurisdiction of the Province of Ontario at present undeveloped, but whose development is required to supply the present and probable needs of the surrounding districts, and to ascertain the capital cost of the attendant transmission plants necessary to the utilization of electric or hydraulic power to be derived from the aforesaid water powers within the respective surrounding districts.

3. To ascertain the rates of prices that would require to be charged the various classes of consumers of hydraulic or electrical power within the respective districts, in order to meet all expenditure of maintenance and operation.

4. To inquire into and ascertain the annual savings accruing to the consumers in the various districts aforesaid by the substitution of the rates or prices to be ascertained under the next preceding paragraph for the rates paid at present in the said Districts so far as the Commissioners may be able to ascertain or estimate them.

5. To inquire into and ascertain the cash capital cost of the hydraulic and electrical power undertakings of existing companies located within the Province of Ontario, the capacity and state of development thereof, and to ascertain further (a) the quantities of power supplied and contracted for and the rates charged and to be charged under such contract by these companies for hydraulic or electrical power; (b) the actual present value of the said undertakings (or such of them as may be required) after making such fair and reasonable allowance for existing conditions as in the judgment of the Commissioners seems necessary or expedient; (c) the estimated capital outlay (if any) necessary to complete these undertakings.

The Committee further advise that for the purpose of carrying out this inquiry the Commissioners be authorized to employ a Secretary, also to employ counsel, engineers, accountants, and such other technical expert and other assistance as may be necessary, and to fix the terms of remuneration to be paid for all such services and generally to do all acts necessary or expedient in the premises.

And the Committee further advise that the said Commissioners do adopt and report the proceedings and transactions had and taken before the Commissioners appointed under the aforesaid Order-in-Council of 5th July, 1905.

And the Committee further advise that the Commission confer upon the said Commissioners, the powers authorized by the above-mentioned act.

Certified,

J. Lonsdale Capréol,
Clerk Executive Council.

Copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 7th Day of June, A.D. 1906.

Upon the recommendation of the Honourable the President of the Council, the Committee of Council advise that under and for the purpose of the Act of last Session, entitled, "An Act to provide for the transmission of Electrical Power to Municipalities," the Honourable Adam Beck, the Honourable John Strathearn Hendrie, and Cecil B. Smith, Esquire, be appointed a Commission, to be a body corporate under the name of "The Hydro-Electric Power Commission of Ontario."

The Committee further advise that the said Honourable Adam Beck be the Chairman of the said Commission.

Certified,

J. Lonsdale Capréol,
Clerk Executive Council.

Copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 28th Day of February, A.D. 1907.

The Committee of Council advise that William K. McNaught, of the City of Toronto, Esquire, M.P.P., be appointed a Member of "The Hydro-Electric Power Commission of Ontario, in the room and stead of Cecil B. Smith, Esquire, resigned.

Certified,

J. Lonsdale Capréol,
Clerk Executive Council.

Acts Passed.

Your Commissioners were appointed in May, 1906, (6 Edward VII., Chap. 15). "An Act to provide for the Transmission of Electrical Power to Municipalities," which is hereunder recited:

No. 243] BILL. [1906

An Act to Provide for the Transmission of Electrical Power to Municipalities.

His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

Appointment of Hydro-Electric Power Commission.

1. For the purposes hereinafter mentioned, the Lieutenant-Governor in Council may from time to time appoint a Commission to consist of three persons, two of whom may be members of the Executive Council of Ontario and one of whom shall be a member of such Executive Council, and such commission shall be a body corporate under the name of "The Hydro-Electric Power Commission of Ontario," hereinafter called "the Commission."

Chairman. Quorum.

2. The Lieutenant-Governor in Council may designate one of the members of the Commission to be the Chairman thereof. Two of the members of the Commission shall form a quorum.

Tenure of office. Vacancies.

3. Every person appointed to the Commission shall hold office during pleasure and the Lieutenant-Governor in Council may upon the death, resignation or removal from office of any member of the Commission appoint some other person to fill his place.

Salaries.

4. The member or members of the Commission other than any member of the Executive Council shall be paid such salary or other remuneration as may be fixed by the Lieutenant-Governor in Council out of such moneys as may be voted by the Legislature for that purpose.

Appointment of officers by Commission.

5. The Commission may, from time to time, appoint a Chief Engineer, an Accountant, and a Secretary, and such other engineers, accountants, officers, servants and workmen as may be deemed requisite. The salaries or other remuneration of the persons so appointed shall be payable out of such moneys as may be voted by the Legislature for that purpose.

Furnishing plans, specifications and estimates to municipal corporations, on application.

6. Any municipal corporation may apply to the Commission for the transmission to such corporation of electrical power or energy for the uses of the corporation and the inhabitants thereof, for lighting, heating and power purposes, and the Commission may thereupon furnish to such municipal corporation estimates of the cost of constructing,

erecting, installing and maintaining all such buildings, works, plant, machinery, poles, wires, conduits and other structures as may be necessary for the purpose of supplying the amount of electrical power or energy required by such municipal corporation and may also furnish to such corporation plans and specifications of the works, plant, machinery and appliances necessary for the distribution of such power and energy by such municipal corporation, together with an estimate of the cost thereof. The Commission shall further furnish to such municipal corporation a statement of the terms and conditions upon which such electrical power or energy may be transmitted and supplied, together with a form of the contract to be entered into between such municipal corporation and the Commission.

Proviso.

Provided that neither the Commission nor the Province of Ontario shall incur any liability to any municipal corporation or company by reason of any error or omission in any such plans, specifications, or estimates.

Council may submit by-law to electors.

7. The council of such municipal corporation may submit to the electors of the municipality in the manner prescribed in *The Consolidated Municipal Act, 1903,* a by-law authorizing the municipal corporation to enter into such contract and in case such by-law receives the assent of the majority of the electors voting thereon, such contract may be entered into and executed by the Commission and the municipal corporation, subject to the approval of the Lieutenant-Governor in Council.

Transmitting and delivering power to municipality under contract.

8. After the execution of such contract and its approval by the Lieutenant-Governor in Council the Commission may proceed to transmit and deliver to the municipal corporation electrical power or energy to the extent mentioned in such contract, and the municipal corporation may receive, use, supply and distribute such electrical power or energy upon such terms and subject to such conditions as to rates and otherwise as the Commission may from time to time prescribe.

Supplying power to railways and distributing companies.

9.—(1) The Commission may, subject to the approval of the Lieutenant-Governor in Council, enter into contracts from time to time with railway companies or distributing companies for the supply of electrical power or energy for the purposes of such companies.

Profits to be applied in reducing cost of maintenance to municipalities.

(2) Any net profit made by the Commission, in supplying power to a railway company or distributing company under any such contract after making due provisions for the cost of acquiring or constructing and of maintaining the works through which the power or energy is supplied to such company, shall be applied in payment of the cost of maintaining the works, if any, acquired or constructed and operated by the Commission for the purpose of transmitting electrical power or energy to municipal corporations.

Agreements for use of right of way of railway companies.

(3) The Commission may, from time to time, with the approval of the Lieutenant-Governor in Council, enter into a contract with any railway company for the use of the right of way of such railway company for the erection of towers, poles, conduits, works and other constructions necessary for transmitting electrical power or energy by the Commission.

Powers of municipalities.

10. Every municipal corporation entering into a contract with the Commission as hereinbefore provided shall, for the purpose of using, distributing and supplying electrical power or energy so contracted for, have the powers, perform the duties and be subject to the like obligations as a municipal corporation constructing or acquiring works for supplying electrical power or energy under the provisions of *The Municipal Light and Heat Act* or *The Consolidated Municipal Act, 1903*. Provided that the clauses lettered (*a*) to (*a*9), both inclusive, following paragraph 4 of section 566 of *The Consolidated Municipal Act, 1903*, shall not apply to any municipal corporation receiving from the Commission and using and distributing electrical power or energy under the provisions of this Act, and it shall not be necessary for the council of any municipal corporation, before passing any by-law or issuing debentures thereunder for the purposes of this Act, to fix any price to be offered to any electric light company or gas company supplying or which has heretofore supplied electric light or gas in such municipality or to take any further or other proceedings having for their object the fixing a price to be paid by the municipal corporation for the works and plant of any such corporation or any part thereof, or the purchase or expropriation of such plant or any part thereof by such corporation, unless the Commission, upon application to it by any such electric light company or by the municipal corporation, shall otherwise order or direct.

Report of Commission as to acquiring works, etc.

11. The Commission may, from time to time, report to the Lieutenant-Governor in Council, designating such lands, water privileges, water powers or the lands, works, machinery and plant, or any portion thereof of any company or person owning, or holding under lease or otherwise, or developing, operating or using any water privilege or water power, or transmitting electrical or other power or energy in the Province of Ontario which should, in the opinion of the Commission, be purchased, acquired, leased, taken or expropriated, developed, operated or used by the Commission for the purposes of this Act, or may designate what quantity of the product of any such corporation or individual developing electrical power or energy in the Province of Ontario, or purchasing such power or energy the Commission requires for the purposes of this Act.

Authority may be given to Commission.

12. The Lieutenant-Governor in Council may, from time to time, upon the recommendation of the Commission, authorize the Commission:

To acquire lands and works.

(*a*) To acquire by purchase, lease or otherwise, or without the consent of the owners thereof or persons interested therein to enter upon, take and use the lands, works, plant and property of any company or person owning, using and developing or operating lands, water, water privileges, or works, plant and machinery for the development of any water privilege or water power for the purpose of generating electrical power or energy or for the transmission thereof in the Province of Ontario, and to develop and supply electrical power or energy;

Entering and property of transmission companies.

(*b*) To acquire by purchase, lease or otherwise, or without the consent of the owners thereof or persons interested therein to enter upon, take, use, and to construct, maintain and operate works, machinery, plant and appliances, lines of wires, poles, tunnels, conduits and other works for the transmission and delivery of electrical power or energy, and to conduct, store, transmit and deliver electrical power or energy, and with such lines of wires, poles, conduits, motors or other conductors or devices to conduct, convey, transmit, distribute, deliver, furnish or receive such electrical power or energy to or from any person at any place through, over, along or across any public highways, bridges, viaducts, railways, watercourses, or over or under any waters, and through, over or under the lands of any person, and to enter upon any lands upon either side of such lines or conduits, and fell or remove any trees or limbs thereof, or other obstructions, which, in the opinion of the Commission, it is necessary to fell or remove;

Taking power produced by companies.

(*c*) To demand, order and direct the delivery to the Commission of the whole or any part of the product of the works of any company or person developing or which proposes to develop a water power or water privilege for the purpose of generating electrical power or energy in the Province of Ontario, or to enter into agreements with any such company or person for the supply of such product or any part thereof to the Commission for the purposes of this Act.

Application of Rev. Stat., c. 37.

13. Whenever the Lieutenant-Governor in Council shall authorize the Commission to enter into, take, use and expropriate the lands, works, plant, machinery, poles, wires and other property and appliances of any such company or person, or to take or expropriate the product of the works of any such company or person as aforesaid, or any portion thereof, the Commission shall have the powers and shall proceed in the like manner as is provided in the case of the Minister of Public Works taking lands or property for the public uses of the Province of Ontario, and the provisions of *The Public Works Act* shall, *mutatis mutandis*, apply to the Commission acting under the authority of the Lieutenant-Governor in Council in such behalf.

Cost of works to be borne by municipalities.

14. The expenditure of the Commission upon any works, undertaken under the provisions of this Act, shall be repayable to the Commission by the municipal corporations entering into contracts with the Commission as hereinbefore authorized.

Annual payments to be made by municipalities.

15. In addition to the price per horse power payable by any municipal corporation under the terms of a contract entered into with the Commission (which price shall include an allowance for generating, transforming and transmission losses) every municipal corporation entering into such a contract shall annually pay to the Commission its proportion of the following charges:

(*a*) Interest at the rate of 4 per cent. upon the moneys expended by the Commission on capital account in the construction or purchase of the works, plant, machinery and appliances constructed or acquired by the Commission for the purpose of developing, transmitting and delivering electrical power or energy to such municipal corporation, and other municipalities, if any;

(*b*) An annual sum sufficient to form in thirty years a sinking fund for the retirement of the securities issued by the Province of Ontario under this Act for the payment of the cost of the works hereinbefore mentioned;

(*c*) The cost of operating, maintaining, repairing, renewing and insuring the said works, plant, machinery and appliances.

Apportionment of amounts payable by municipalities.

16. The Accountant of the Commission shall annually adjust and apportion the amounts payable by municipal corporations to the Commission under the next preceding section.

Government authorized to raise funds necessary for work of Commission.

17. The Lieutenant-Governor in Council may from time to time raise by way of loan on the credit of the Province of Ontario as provided by the Act passed in the fifth year of His Majesty's reign, Chapter 2, such sums as may be required for the purposes hereinbefore mentioned, and the proceeds of every such loan may be paid over to the Commission for the purposes of this Act and be audited and accounted for in the manner provided by the Statutes of this Province respecting the management of the public revenue, and public accounts.

Commission to account for moneys received, application of same.

18. All sums received by the Commission from municipal corporations, railway and other companies under this Act shall be duly accounted for by the Commission and shall be paid over to the Treasurer of the Province of Ontario, to be applied from time to time in the retirement of the securities given by the Province for any loan raised under this Act by the Lieutenant-Governor in Council.

Complaints as to rates charged by light, heat, power or gas companies, etc.

19.—(1) Upon the complaint in writing of any municipal corporation, company or person that any municipal corporation, company or person receiving power from the Commission under a contract as hereinbefore mentioned is charging for supplying electric lighting or heating or electric power or energy at a rate which is excessive or unfair, or that any municipal corporation is making use of the power conferred upon it by this Act for the purpose of granting bonuses by supplying power, light or heat below cost to manufacturers or others, the chairman of the Commission may appoint a time and place at which the Commission or some member thereof will hear and determine the matter in dispute.

Hearing of complaints.

(2) Such notice of such appointment as the chairman may direct shall be given by the secretary of the Commission to all parties concerned. At the time and place appointed the Commission, or with the consent of all parties any member of the Commission, shall hear and determine the matter in dispute and shall make an order dismissing or

allowing the complaint and directing what rates shall be charged by the municipal corporation, company or person against whom the complaint is made, and regulating and determining the rates and charges to be imposed by such municipal corporation, company or person, and directing the amendment of any by-law or agreement accordingly.

Powers of Commission on enquiry.

(3) The Commission or the member thereof conducting the hearing shall have the powers authorized to be conferred upon a Commissioner appointed under *The Act respecting Enquiries Concerning Public Matters.*

Penalty for disobedience to order of Commission.

(4) Any such municipal corporation, company or person neglecting or refusing to obey and carry out the order or direction of the Commission or the member thereof conducting such case shall forfeit to His Majesty for the uses of the Province the sum of $100 for every day during which such refusal or neglect shall continue.

Commission to report on water powers, etc., when required.

20. The Commission shall, whenever required by the Lieutenant-Governor in Council so to do, enquire into, examine and investigate water powers or water privileges in the Province and report to the Lieutenant-Governor in Council upon the value and capacity thereof, with such other information as the Lieutenant-Governor in Council may require. Every report of the Commission shall be laid before the Legislative Assembly at its next ensuing session.

No action to be brought against Commission without consent of Attorney-General.

21. No action shall be brought against the Commission or against any member thereof for anything done or omitted in the exercise of his office without the consent of the Attorney-General for Ontario.

Extent of powers of expropriation.

22. The powers of expropriation conferred by this Act shall extend to lands, works, rights, powers and privileges, notwithstanding that the same are or may be deemed to be devoted to a public use or that the owner thereof possesses the power of taking lands compulsorily.

During the year 1907, the Act under which your Commissioners were working was amended, and "An Act to provide for the Transmission of Electrical Power to Municipalities" (7 Edward VII., Chap. 19), was assented to by the Legislature on April 20th, 1907. A copy of this Act appears herewith:

CHAPTER 19.

An Act to provide for the Transmission of Electrical Power to Municipalities.

Assented to 20th April, 1907.

HIS MAJESTY, by and with the consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

1. This Act may be cited as *The Power Commission Act.* Short Title.

2. For the purposes hereinafter mentioned, the Lieutenant-Governor in Council may from time to time appoint a Commission of three persons, two of whom may be members and one of whom shall be a member of the Executive Council, and The Commission shall be a body corporate under the name of "The Hydro-Electric Power Commission of Ontario," hereinafter called "The Commission." 6 Edw. VII. c. 15, s. 1. Appointment of Hydro-Electric Power Commission.

3. The Lieutenant-Governor in Council may appoint one of the members to be Chairman of The Commission. Two members shall form a quorum. 6 Edw. VII. c. 15, s. 2. Chairman. Quorum.

4. Every person appointed to The Commission shall hold office during pleasure, and the Lieutenant-Governor in Council, upon the death, resignation or removal from office of any member of The Commission, may appoint some other person to fill his place. 6 Edw. VII. c. 15, s. 3. Tenure of office. Vacancies.

5. The members of The Commission other than a member of the Executive Council shall be paid out of such moneys as may be voted by the Legislature for that purpose such salary or other remuneration as may be fixed by the Lieutenant-Governor in Council. 6 Edw. VII. c. 15, s. 4. Salaries.

6. The Commission may appoint a Chief Engineer, an Accountant, and a Secretary, and such other engineers, accountants, officers, servants and workmen as may be deemed requisite. The salaries or other remuneration of the persons so appointed shall be fixed by The Commission subject to the ratification of the Lieutenant-Governor in Council and shall be payable out of such moneys as may be voted by the Legislature for that purpose. 6 Edw. VII. c. 15, s. 5. Appointment of officers by Commission.

7. The Commission may from time to time, report to the Lieutenant-Governor in Council, designating the lands, waters, water privileges or water powers or the lands, works, machinery and plant, or portion thereof of any corporation or person owning or holding under lease or otherwise, or developing, operating or using a water privilege or water power, or transmitting electrical or other power or energy in Ontario which in the opinion of The Commission, should be purchased, acquired, Report of Commission as to acquiring works, etc.

leased, taken, expropriated, developed, operated or used by The Commission for the purposes of this Act, or designating the quantity of the product of any corporation or person generating electrical power or energy in Ontario or bringing such power or energy into Ontario for use or transmission therein which The Commission requires for the purposes of this Act. 6 Edw. VII. c. 15, s. 11.

Authority may be given to Commission.

8. The Lieutenant-Governor in Council, upon the report of The Commission recommending the same, may authorize the Commission:—

To acquire works and works.

(*a*) To acquire by purchase, lease or otherwise, or without the consent of the owners thereof or persons interested therein to enter upon, take and use the lands, waters, water privileges, water powers, works, machinery and plant of any corporation or person owning, holding under lease or otherwise or developing, operating or using the same for generating or adapted for generating electrical power or energy or for the transmission thereof in Ontario; and to develop and use the same for any of the purposes of this Act.

Plant and property of transmission Companies.

(*b*) To construct, maintain and operate, and to acquire by purchase, lease or otherwise, or without the consent of the owners thereof or persons interested therein to enter upon, take, and use, all erections, machinery, plant, and other works and appliances for the transmission and supply of electrical power or energy, and to conduct, store, transmit and supply electrical power or energy for the purposes of this Act and with lines of wires, poles, conduits, motors or other conductors or devices to receive, conduct, convey, transmit, distribute, supply or furnish such electrical power or energy to or from any corporation or person at any place through, over, under, along, or across any lands, public highway, bridge, viaduct, railway, waters or watercourse, and through, over or under the lands of any corporation or person, and to enter upon any lands upon either side of such lines or conduits and fell or remove any tree or limb thereof, or obstruction, which, in the opinion of The Commission, it is necessary to fell or remove;

Contracting for supply of power to Commission.

(*c*) To contract with any corporation or person generating, transmitting or distributing electrical power or energy or proposing so to do to supply electrical power or energy to The Commission; and to require any corporation or person generating, transmitting or distributing electrical power or energy to supply so much thereof as The Commission may require.

Powers of Commission as to expropriation, when exercised.

9. Whenever The Commission is authorized by the Lieutenant-Governor in Council to exercise any of the compulsory powers mentioned in section 8, The Commission in respect thereof shall have the powers

and shall proceed in the manner provided by *The Public Works Act*, where the Minister of Public Works takes land or property for the use of the Province, and the provisions of the said Act shall *mutatis mutandis* apply. Rev. Stat. c. 37.

10. The compulsory powers conferred by this Act shall extend to lands, works, rights, powers, privileges and property notwithstanding that the same are or may be deemed to be devoted to a public use or that the owner thereof possesses the powers of taking lands compulsorily. 6 Edw. VII. c. 15, s. 22. Extent of powers of expropriation.

11. Whenever required by the Lieutenant-Governor in Council so to do, The Commission shall enquire into, examine and investigate water powers or water privileges in Ontario and report upon the value and capacity thereof, with such other information as the Lieutenant-Governor in Council may require. Every report of The Commission shall be laid before the Legislative Assembly at its next ensuing session. 6 Edw. VII. c. 15, s. 20. Commission to report on water powers, etc., when required.

12. Any municipal corporation may apply to The Commission for the transmission and supply to the corporation of electrical power or energy for the use of the corporation and the inhabitants of the municipality for lighting, heating and power purposes or for any or either of such purposes or for any of the purposes mentioned in section 14, and The Commission shall thereupon furnish to the corporation a statement of the maximum price per horsepower at which the electrical power or energy will be supplied at the point of development or of its delivery to The Commission and an estimate of the cost of constructing or providing a transmission line by means of which the amount of electrical power or energy required by the corporation is to be supplied and of maintaining the same, and may furnish to the corporation plans and specifications of the works, plant, machinery and appliances necessary for the distribution of such power or energy by the corporation and an estimate of the cost thereof, and such other information as The Commission may deem advisable. The Council may thereupon enter into a provisional contract with The Commission for the supply of electrical power or energy for the purposes mentioned in this Act. Application to Commission for supply of power to municipal corporation.

13.—(1) The provisional contract shall not be binding upon the corporation unless and until a by-law approving the same has been submitted to and has received the assent in accordance with the provisions of *The Consolidated Municipal Act*, 1903, of the electors qualified to vote on by-laws for creating debts, and the estimates of The Commission or a summary thereof and a copy of the provisional contract shall be published with or form part of the by-law. Submission of provisional contract to ratepayers.

(2) After the provisional contract has received the assents of the electors and has been executed by the corporation and approved by the Lieutenant-Governor in Council, The Commission may carry out and execute the same and shall have power and authority to do all acts necessary for that purpose. Execution of contract.

Powers of contracting municipality as to supplying light, heat and power.

14.—(1) In addition to the powers conferred by this Act, a municipal corporation which has entered into a contract with The Commission for the supply of electrical power or energy shall have and may exercise in respect of such power or energy all the powers which are by *The Municipal Light and Heat Act* or *The Consolidated Municipal Act*, 1903, conferred upon corporations in respect to light and heat, and all the powers which are conferred upon corporations by the said last mentioned Act for contracting debts for any purpose within the jurisdiction of the council thereof and also the power to expropriate land, making compensation therefor, under the provisions of the said last mentioned Act.

Submission of money by-laws with contract.

(2) The council of a municipal corporation, if they shall see fit, may submit a by-law for raising the money required for any of the purposes mentioned or referred to in sub-section 1, at the same time as the provisional contract is submitted to the electors under the provisions of section 13.

Supplying power outside of municipality.

(3) A municipal corporation which has entered into a contract with The Commission under this Act may from time to time, with the approval of The Commission, contract with any other municipal corporation or with any person or corporation for the supply or distribution of electrical power or energy in any other municipality, and such other municipal corporation shall have authority to enter into the contract; but a municipal corporation shall not exercise the power conferred by this section in another municipality without the consent of the council thereof.

3 Edw. VII., c. 19, s. 566, par. 4, cls. *a* (*a*1) to (*a*9), 567*a* and 567*b* not to apply.

15. For greater certainty it is hereby declared that clauses lettered (*a*1) to (*a*9), both inclusive, following paragraph 4 of section 566 and sections 567*a* and 567*b* of *The Consolidated Municipal Act*, 1903, shall not apply to any municipal corporation which has entered into a contract with The Commission or to any by-law which shall be submitted to the electors under the provisions of this Act.

Supplying power to railways and distributing companies.

16.—(1) The Commission may, subject to the approval of the Lieutenant-Governor in Council, contract from time to time with a railway company or a distributing company or with any other corporation or person for the supply of electrical power or energy.

Profits to be applied in reducing cost of maintenance in municipalities.

(2) Any net profit made by The Commission in supplying power under the next preceding sub-section after making provision for the cost of acquiring or constructing and of maintaining the works by means of which the power or energy is supplied, shall be applied in payment of the cost of maintaining the works acquired or constructed and operated by The Commission.

Agreements for use of rights of way of railway companies.

(3) The Commission may, from time to time, with the approval of the Lieutenant Governor in Council, contract with a railway company or power or transmission company for the use of its right of way and property for the erection of works and other constructions for transmitting electrical power or energy. 6 Edw. VII. c. 15, s. 9.

Cost of works to be borne by municipalities.

17. The expenditure of The Commission upon any works, undertaken under the provisions of this Act, shall be repayable to The Commission by the municipal corporations which have entered into contracts with The Commission. 6 Edw. VII. c. 15, s. 14.

Additional annual payments.

18. In addition to the price per horse power payable by any municipal corporation under the terms of a contract entered into with The Commission, which shall be the cost of the power to The Commission at the point of development, or of its delivery to The Commission, the corporation shall annually pay to The Commission its proportion as adjusted by The Commission of the following charges:—

(*a*) Interest at the rate of 4 per cent. upon the moneys expended by The Commission on capital account in the construction or purchase of the works.

(*b*) An annual sum sufficient to form in thirty years a sinking fund for the retirement of the securities issued by the Province under this Act for the payment of the cost of the works; and

(*c*) Line loss and the cost of operating, maintaining, repairing, renewing and insuring the works.

Apportionment of amounts payable by municipalities.

19. The Commission shall annually adjust and apportion the amounts payable by municipal corporations under the next preceding section. 6 Edw. VII. c. 15, s. 16.

Government authorized to raise funds necessary for work of Commission.

20. The Lieutenant-Governor in Council may from time to time raise by way of loan on the credit of the Province in the manner provided by the Act passed in the fifth year of His Majesty's reign, Chaptered 2, such sums as the Lieutenant-Governor in Council may deem requisite for the purposes of this Act, and such sums may be paid over to The Commission and shall be accounted for and audited in the manner provided with respect to the management of the public revenue and public accounts. 6 Edw. VII. c. 15, s. 17.

Commission to account for moneys received—application of same.

21. All sums received by The Commission shall be accounted for and paid over to the Treasurer of the Province, to be applied from time to time in the retirement of the securities given by the Province for any debt incurred under the authority of this Act. 6 Edw. VII. c. 15, s. 18.

Complaints as to rates charged for light, heat or power.

22.—(1) Upon the complaint in writing of any municipal corporation, company or person that any municipal corporation, company or person, receiving power from The Commission is charging for electric lighting or heating or for electrical power or energy a rate which is excessive or unfair, or that any municipal corporation is making use of the power conferred upon it by this Act for the purpose of granting a bonus by supplying power, light or heat below cost to manufacturers or others, the chairman of The Commission may appoint a time and place at which The Commission or some member thereof will hear and determine the matter of the complaint.

Hearing of Complaints.

(2) Such notice of the appointment as the Chairman may direct shall be given by the Secretary of The Commission to such persons as the Chairman may direct. At the time and place appointed The Commission or member thereof shall hear and determine the matter of the complaint and may dismiss or allow the complaint and may direct what rates shall be charged, and may regulate and determine the rates to be charged and may direct the amendment of any by-law or agreement accordingly, or may make such order as may seem meet.

Powers of Commission on enquiry.

(3) The Commission or the member thereof hearing the complaint shall have all the powers that may be conferred upon a Commissioner appointed under *The Act respecting Enquiries concerning Public Matters.*

Penalty for disobedience to order of Commission.

(4) Any municipal corporation, company or person neglecting or refusing to obey and carry out the order or direction of The Commission or the member thereof before whom the complaint was heard in addition to any other liability shall forfeit to His Majesty for the uses of the Province the sum of $100 for every day during which such refusal or neglect shall continue. 6 Edw. VII. c. 15, s. 19.

No action to be brought against Commission without consent of Attorney-General.

23. Without the consent of the Attorney-General, no action shall be brought against The Commission or against any member thereof for anything done or omitted in the exercise of his office. 6 Edw. VII. c. 15, s. 21.

Non-liability for errors in estimates, etc.

24. Neither the Province nor The Commission nor any member thereof shall incur any liability by reson of any error or omission in any estimates, plans or specifications prepared or furnished by The Commission.

6 Edw. VII., c. 15 repealed.

25.—(1) The Act passed in the 6th year of His Majesty's reign, Chaptered 15, is hereby repealed, but the repeal thereof shall not affect the matters and things mentioned in section 8 of Chapter 3 of the Revised Statutes of Ontario, 1897, which shall apply to this Act.

Contracts already authorized

(2) Any contract which might have been entered into under the authority of the repealed Act may be entered into after the passing of this Act with the same effect and in the same way as if the first mentioned Act had not been repealed.

During the year 1908 The Commission received resolutions passed by the various Councils of the municipalities who had made contracts with The Commission for electric power, asking that the Legislature validate all proceedings, by-laws and contracts in connection with these contracts. In accordance with this united request the Legislature passed an Act to validate certain by-laws passed and contracts made pursuant to "An Act to Provide for the Transmission of Electrical Power to Municipalities." A copy of this Validatory Act is produced herewith.

No. 238. 1908

BILL

An Act to validate certain By-laws Passed and Contracts made pursuant to "An Act to Provide for the Transmission of Electrical Power to Municipalities."

His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

1. The By-laws passed by the Municipal Corporation of the Cities of Toronto, Hamilton, London, Brantford, Guelph, Stratford, St. Thomas, Woodstock; the Towns of Ingersoll, Berlin, Galt, Toronto Junction, Hespeler, St. Marys, Preston, Paris and Waterloo, and the Villages of New Hamburg and Weston, purporting to authorize the said Corporations or the Councils thereof, respectively, to enter into a contract with the Hydro-Electric Power Commission of Ontario for a supply of electrical power to be transmitted from Niagara Falls, and the estimates therein set forth, if any, are declared to be, in form and in substance, a sufficient compliance with the provisions of the Act entitled *An Act to provide for the Transmission of Electrical Power to Municipalities*, and the said by-laws are hereby confirmed and declared to be sufficient, legal, valid and binding for the purposes thereof.

2 The by-laws passed by the said Corporations or any of them for the issue of debentures to provide for the construction of a plant to distribute the said power within the limits of the said Corporations and all debentures to be issued thereunder and all assessments to be made and rates to be levied are hereby confirmed and declared to be valid.

3. The contracts set out as Schedules "A" hereto between the said Commission and the Ontario Power Company of Niagara Falls are hereby confirmed and declared to be legal and valid.

4. The form of contract set forth as Schedule "B" hereto between the said Commission and the said Corporations is declared to be a sufficient compliance with the provisions of the said Act, and the said Corporations, or any of them, are authorized and empowered to enter into a contract with the said Commission in said form, or with such additions and alterations as may be approved of by the Lieutenant-Governor in Council; and when executed the said contract shall be legal, valid, and binding on the parties thereto for the purposes of the said Act.

SCHEDULE "A."

This Agreement made the nineteenth day of March, 1908, between The Hydro-Electric Power Commission of Ontario, acting herein on its own behalf and with the approval of the Lieutenant-Governor in Council (hereinafter called the "Commission") party of the First Part, and The Ontario Power Company of Niagara Falls (hereinafter called the "Company"), party of the Second part.

Whereas the Commission invited tenders for electric power to be supplied at or near the Niagara Falls, and the Company made the lowest tender for the supply of power to the Commission for their purposes under the provisions of the Power Commission Act.

And whereas certain municipalities have applied to the Commission for the maximum price of such power at Niagara Falls and for estimates of the cost of transmission to the said municipalities;

And whereas the estimates of the Commission will be based in part upon this agreement, and the Commission will be required to devote time and skill and expend moneys in the preparation of such estimates, and such estimates are to be used by said municipalities for the purposes fully set forth in the said Act;

And whereas the Commission declined other tenders and accepted the tender of the Company and entered into the agreement hereto attached, but it was provided that certain additions might be made to the said agreement, and the parties have agreed to vary the said agreement in the manner hereinafter set forth;

Now therefore this Indenture witnesseth that in consideration of the premises and of the mutual covenants and agreements herein contained, the parties hereto have mutually agreed and do each agree with the other as follows:—

1. That, except in so far as the said agreement is modified by this present agreement the same shall stand and be of full force, virtue and effect and binding between the parties.

2. The Company hereby agrees:—

(*a*) At the expiration of ninety days' notice in writing by the Commission to the Company to deliver eight thousand (8,000) horse power or more of electric power to the Commission.

(*b*) At the expiration of three months' like notice which may be given from time to time during the continuance of this agreement to deliver from time to time to the Commission in blocks of not less than one thousand (1,000) horse power each, additional electric power until the total amount so delivered shall amount to thirty thousand (30,000) horse power.

(*c*) At the expiration of nine months' like notice, which may be given from time to time during the continuance of this agreement, to deliver from time to time to the Commission in like blocks, additional electric power until the total so delivered shall amount to one hundred thousand (100,000) horse power.

(*d*) The Commission shall not be bound to take or pay for any electric power until notice shall have been given as above provided.

(*e*) The Commission agrees to use all diligence by every lawful means in its power to procure such a demand from the municipalities, corporations, companies or persons for the power dealt with by this agreement so that at as early a date as possible the Commission will be in a position to give the notice above referred to the Company for the supply of power in question, and if notwithstanding the exercise of all such reasonable diligence the Commission is not able within a period of eighteen months from the date of this agreement to give such notice, then the Company shall be at liberty to determine the agreement and it shall thereupon be no longer binding upon the parties hereto.

(*f*) The Commission agrees to take power exclusively from the Company up to the said 30,000 horse power, and also in addition thereto one-half of the amount of power required by the Commission up to the said 100,000 horse power; thereafter the Commission may, at its option, take power from other sources.

3. The Company hereby agrees to deliver, and the Commission agrees to purchase and pay for the said several quantities of electric power on the terms and conditions of this agreement.

4. The Commission hereby agrees to pay to the Company for such power so delivered under the terms of this agreement at the rate of $9.40 per horse power per annum for power at 12,000 volts, and at the rate of $10.40 per horse power per annum for power at 60,000 volts, and when the amount reserved and held ready for delivery upon the order of the Commission is in all, 25,000 horse power or more, payment shall be made at the rate of $9.00 per horse power or more per annum for power at 12,000 volts, and at the rate of $10.00 per horse power per annum for power at 60,000 volts. If power is taken at a higher voltage than 60,000 volts the price shall be determined as hereinafter provided. The power shall be paid for monthly in gold coin of the present standard of weight and fineness in twelve amounts in each year

at the office of the Company at Niagara Falls, Ontario, and bills shall be rendered by the Company on the first and paid by the Commission on or before the fifteenth of each month.

5. The Commission shall pay for three-fourths of the power ordered by the Commission and held in reserve for it as herein provided whether it takes the same or not.

6. When the greatest amount of power taken for any twenty consecutive minutes during any month shall exceed three-fourths of the amount during such twenty consecutive minutes ordered by the Commission and held in reserve then the Commission shall pay for this greater amount during that entire month.

7. The point of delivery shall be the property line between the Company's distributing station and the right of way of the Michigan Central Railway at Niagara Falls, Ontario, Canada, and at or near this point on the Company's land the Commission shall have the right to erect and maintain during the continuance of this agreement its initial line structure or structures.

8. This agreement shall remain in force for ten years from the date of the expiration of the said ninety days' notice. The Commission may, at its option, continue this agreement for one, two or three further consecutive terms of ten years each by giving notice in writing of its intention to continue this agreement for the second term of ten years, at least three years before the expiration of the first term of ten years, and if pursuant to such notice this agreement is continued, by giving notice of its intention to continue this agreement for the third period of ten years at least three years before the expiration of the second term of ten years, and if pursuant to such last mentioned notice this agreement is continued, by giving notice of its intention to continue this agreement for the fourth term of ten years at least three years before the expiration of the third term of ten years. This agreement shall not in any event extend beyond the 1st of April, 1950, the date at which the first term of years of an agreement of the Company with the Commissioners of the Queen Victoria Niagara Falls Park dated eleventh April, 1900, will expire.

9. The electric power herein contracted for shall be three phase, alternating, commercially continuous twenty-four hour power every day of the year except as provided in paragraph 17 hereof.

10. It is agreed that the maintenance by the Company of approximately the agreed voltage at approximately the agreed frequency at the line switch or switches of the Company shall constitute the delivery of all power involved herein and the fulfilment of all operating obligations hereunder; and that when voltage and frequency are so maintained the amount of the power, its fluctuations load factor, power factor, distribution as to phases, and all other electric characteristics and qualities are under the sole control of the Commission, its agents, customers, apparatus, appliances and circuit.

11. The several blocks of power herein provided for shall be the amounts which the Company shall from time to time hold in reserve upon the order of the Commission and the Commission shall not at any time take more than the amount so ordered and held in reserve for it.

12. The Commission shall so take power that the kilo volt amperes so taken shall not at any time exceed by more than ten per cent. the kilowatts held in reserve for it and this provision shall apply proportionately to each circuit and phase.

13. The Company shall at all times use first-class, modern standard, commercial, hydro-electric power apparatus and plant and the power shall be delivered at approximately 12,000 volts or approximately 60,000 volts unless otherwise agreed as hereinafter provided, and at approximately 25 cycles per second, the Company shall use first-class, modern, standard regulating apparatus and all due skill and diligence to maintain the power at such voltage and frequency. The Commission may require part of the said power to be delivered at more than 60,000 volts and the Company shall be entitled to have the price for such higher voltage increased to such an extent as shall be relatively the equivalent, but without increased profit, to the price of power delivered at 60,000 volts, and in case the Company and the Commission cannot fix the higher voltage and the price to be paid therefor, the voltage may be fixed and the price to be paid determined under *The Arbitration Act*, Revised Statutes of Ontario, 1897, Chapter 62, in a summary manner and without appeal. Notwithstanding any award the Commission may decide to take power at 12,000 or 60,000 volts, but in that event the Commission shall pay all costs of said arbitration. The Commission shall with the ninety days' notice before mentioned specify in writing to the Company that the power

is to be delivered at not more than two of the said voltages or partly at one of the two and partly at the other voltage, and the Company shall deliver power or at the same time a certain part of the power at one voltage, and a certain part at the other so specified. The Commission may from time to time vary the quantities to be delivered at the specified voltages and thereupon the Company shall deliver the said power as varied, but the price for the power specified at the higher voltage shall not be reduced if the power is taken at the lower voltage. If part of the power is specified at a voltage higher than 60,000 volts the Commission shall give one year's notice instead of ninety days' notice for that part of such power.

14. The Commission and its customers shall select and use transformers and all apparatus most suitable to receive the electric power produced by the apparatus of the Company and the Commission's transmitting, transforming, translating and all other apparatus and devices upon its circuits when receiving power from the Company shall be of modern, standard design and construction and shall be operated and maintained with special reference to securing the highest efficiency and most perfect operation not only of its own but also of the apparatus of the Company when receiving power from the Company; and the Commission shall instal upon and equip all circuits with such approved protective devices as are in commercial use and operate its circuits in such a manner as will to the then greatest extent protect the apparatus and circuits of the Company from damage and interruption by lightning, short-circuiting or otherwise so as to save harmless the Company from any damage that may arise in the use of the said power supplied by the Company to the said Commission.

After the happening of any of the events provided for in paragraphs 17 and 22, power shall be delivered first to the Commission before re-establishing power to any other customer or customers of the Power Company, provided that the Commission's lines are ready to receive such power.

15. The power herein provided for shall be measured by curve-drawing meters. These meters shall be subject to test as to accuracy by either party hereto.

16. The engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Company and take records at all reasonable hours on giving to the Company six hours' notice of the intention to make such inspection. The Company shall have a like right on giving a like notice to inspect the apparatus, plant and property of the Commission and of the municipalities, companies and persons who are using power supplied by it through or to the Commission.

17. In case the Company shall at any time or times be prevented from delivering said power, or any part thereof, or in case the Commission shall at any time be prevented from taking said power, or any part thereof, by strike, lock-out, riot, fire, invasion, explosion, act of God or the King's enemies, or any other cause reasonably beyond their control, then the Company shall not be bound to deliver such power during such time and the Commission shall not be bound to pay for such power during such time but as soon as the cause of such interruption is removed the Company shall without any delay deliver the said power as aforesaid and the Commission shall take the same and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

18. If and so often as any interruption shall occur in the service of the Company due to any cause or causes other than those provided for by the next preceding paragraph hereof, the Company shall pay to the Commission as liquidated and ascertained damages, and not by way of penalty, as follows:—For any interruption less than one hour double the amount payable for power which should have been delivered during the time of such interruption, and for any interruption of one hour or more, the amount payable for the power which should have been delivered during the time of such interruption and twelve times the last mentioned amount in addition thereto and all moneys payable under this paragraph when the amount thereof is settled between the parties may be deducted from any moneys payable by the Commission to the Company under this agreement, but such right of deduction shall not in any case delay the monthly payments for power contracted for by this agreement.

19. It is recognized by both the parties hereto that the state of the art of production, transmission and application of electric energy is subject to constant advance and that it is impossible by contract to cover all the

requirements and conditions which time may develop; the Company and the Commission with the approval of the Lieutenant-Governor in Council while adhering to the provisions of this agreement will at any time upon the request of the other take up and in good faith fairly consider with the aid of the respective engineers any features or changes of the system as a whole or any modifications of any of the provisions hereof provided it shall appear to the party to whom such request is made that compliance therewith shall tend to make this agreement more effective and to make the venture of each party more successful and certain; provided, however, that any such action or the failure on the part of either party to require of the other exact conformity to the provisions of this agreement, or any liberty or greater latitude beyond the provisions of this agreement allowed by either party to the other in the course of the co-operation implied by the spirit of this agreement shall in no manner operate as or constitute a precedent or amend or change the obligation of the parties thereto.

20. This agreement is entered into subject to the provisions of *The Power Commission Act* and neither the making of this agreement nor anything herein contained shall in any way limit or prejudice any rights and powers which the Commission may now have to expropriate the plant and apparatus of the said Company or any plant thereof or the power generated by the said Power Company or any other power company, but nothing in this agreement shall be taken to give or enlarge any such power.

21. It is agreed that in case any dispute shall arise relating to the question of the performance and fulfilment of any of the terms, provisoes or conditions of this agreement, or as to the method or accuracy of the measurement of the power, or as to any question which may arise under this agreement, or as to the rights of any of the parties after the termination of this agreement, under paragraph 22, the same shall be determined by two independent persons, one to be chosen by each of the parties to such dispute, and such persons before proceeding with the reference shall appoint a third arbitrator to act with them, and the decision of the said three arbitrators, or a majority of them, shall be conclusive on both parties except as hereinafter provided, and in case either of the said parties shall neglect or fail to appoint an arbitrator within thirty days after the request in writing by the other party then the arbitrator appointed by the other party may proceed alone and his award shall be conclusive on both parties except as hereinafter provided. The award shall be made within four months after the appointment of the first of such arbitrators, and in the event of the two arbitrators appointed as aforesaid being unable or unwilling to agree upon a third arbitrator for two weeks after their appointment or the appointment of the one of them who was last appointed, then said third arbitrator shall be chosen and appointed by the Chief Justice for the time being of the King's Bench, Division of the High Court of Justice for the Province of Ontario, or in the event of the said Chief Justice being ill, absent from the Province or otherwise unable or refusing to act, then such third arbitrator shall be appointed by any Judge of the High Court of Justice, or any Judge other than a local Judge. It is agreed that there may be an appeal by either party from any decision or award of such arbitrators to the High Court of Justice for Ontario in accordance with the provisions of *The Arbitration Act* in that behalf.

22. In case the plant, apparatus, buildings or premises of the Company, or any part thereof, shall at any time during the continuance of this agreement be damaged or destroyed so as to prevent the Company from supplying the said power of the quantity and quality hereinbefore provided for to the Commission the Company shall use its best endeavor to procure the said supply of power for the Commission otherwise or elsewhere and if the Company fails or neglects to procure such power for the Commission then the Commission may, with the approval of the Lieutenant-Governor in Council, procure such power at reasonable rates and charge the same to the Company; and if the said power cannot be procured either by the Company or the Commission then the Commission may, with the approval of the Lieutenant-Governor in Council, terminate this agreement.

23. If at any time that the quantity of power which is being taken under this agreement by the Commission shall amount to sixty per cent. or more of the total power which the Company is developing and a complaint is then made in writing by the Commission to the Company that the Company has so continuously neglected or failed to perform the terms of this agreement that the apparatus of the Commission or its customers cannot by reason of such neglect or failure of the Company be operated to full efficiency and the Company shall not within a reasonable time remedy such

neglect or failure, then the matter of complaint may be referred to the Lieutenant-Governor in Council, and if he determine that there is a just ground of complaint he may direct that the Company shall remedy such neglect or failure within a time to be fixed by him, and if such neglect or failure be not remedied as directed by him the Lieutenant-Governor in Council may order that upon such terms as he deem reasonable including the rights of other parties interested, the whole of the plant, apparatus and property of the Company shall be transferred to the Commission, whereupon, on payment and satisfaction of the said terms the amount of which payment and satisfaction is to be settled by the arbitrators appointed as hereinbefore stated, the Commission may, with the approval of the Lieutenant-Governor in Council take over the plant, apparatus and property and the same shall be transferred to the Commission.

24. The Company agrees with the Commission that the Company will not, during the continuance of this agreement, exercise the right to cancel the agreement dated 11th April, 1900, between the Company and the Commissioners of the Queen Victoria Niagara Falls Park.

25. In case any municipal corporation which shall contract with the Commission for a supply of power or any person, firm or Corporation which shall contract with any such municipal Corporation, or with the Commission for a supply of power furnished to the Commission by the Company, shall suffer damages by the act or neglect of the Company, and such municipal Corporation, person, firm, or corporation would, if the Company had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such municipal Corporation, person, firm or corporation, and notwithstanding any acts, decision or rule of law to the contrary the Commission shall be entitled to all the rights and remedies of such municipal Corporation, person, firm or corporation including the right to recover such damages, but no action shall be brought by the Commission until such municipal Corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceeding or action is unsuccessful. The rights and remedies of any such municipal Corporation, person, firm or Corporation shall not be hereby prejudiced.

26. Subject to the provisions of paragraphs 22 and 23 of this agreement, notwithstanding there may be differences between the parties hereto as to the supply of sufficiency of the said power or the payment therefor or any other questions whatever which may arise under this agreement, the Company shall continue to deliver the power and the Commission to pay therefor and both parties shall continue to carry out the contract notwithstanding such differences; and when the matters which may be so in issue shall be finally determined by the reference to arbitration in the manner provided by paragraph 21 hereof, the parties shall deal with such matters according to the terms of the award which may be made upon such reference. It being the distinct agreement between the parties that there shall not be during the period of this agreement any stoppage or cessation in the supply of the said power or on the payments therefor but that the same shall be continued as if there was no such difference.

27. The Company shall not directly or indirectly deliver power in Ontario to any person or Corporation that it is intended shall be supplied by the Commission under this agreement. In case any difference arises as to the said supply the same shall be settled with the said arbitrators. This paragraph shall not be held to cover or interfere with the supply of power agreed to be delivered by the said Company to any persons or Corporations other than the Commission at the date on which the first block of power is ordered by the Commission from the Company under this agreement, but the said supply of power shall continue unaffected by this agreement. The Commission agrees it will not supply power at less than 60,000 volts at a price less than the price herein provided for power at 60,000 volts with the cost of transforming added thereto any person or Corporation in the territory supplied from the transmission lines of the Company at the rate at which the first block of power is ordered by the Commission from the Company under this agreement. In case any difference arises as to the extent of such territory the same shall be settled by said arbitrators.

28. This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

29. Notwithstanding anything hereinbefore contained this agreement shall not come into operation as against the Commission or be binding upon the

Commission until, in addition to any other Orders in Council, pursuant to said Act, an Order in Council has been passed and approved by the Lieutenant-Governor in Council expressly declaring that this agreement shall, from the date of such Order in Council, be binding upon the Commission, but this shall in no way interfere with the agreement contained in paragraph 2 (*e*) and the Commission undertakes to do all things lawful in its power that may be needed to bring this agreement into operation at as early a date as possible and to procure the assent and declaration of the said Lieutenant-Governor in Council above referred to and the said Company agrees to co-operate with the Commission by all lawful means in its power to carry out the object of this agreement.

In witness whereof the said Commission has affixed its corporate seal and has signed, sealed and executed the present agreement; and the Company by and through its President and Secretary duly authorized for all purposes hereof has hereunto affixed its corporate seal under the hands of its President and Secretary.

A. Beck,
John S. Hendrie.
W. K. McNaught.

(Seal.)

The Ontario Power Company of Niagara Falls.

J. J. Albright,
President.

(Seal.)

Robert C. Board,
Secretary.

This Agreement made this 12th day of August, 1907, between The Hydro-Electric Power Commission of Ontario, acting herein on its own behalf, and with the approval of the Lieutenant-Governor in Council (hereinafter called the "Commission"), party of the First Part, and The Ontario Power Company of Niagara Falls, incorporated by the Parliament of the Dominion of Canada, under and by virtue of Act, 1887, 50-51 Victoria, Chapter 120; Act, 1891, 54-55 Victoria, Chapter 126; Act, 1893, 56 Victoria, Chapter 89; Act, 1899, 62-63 Victoria, Chapter 105; Act, 1900, 63-64 Victoria, Chapter 115, and Act, 1902, 2 Edward VII, Chapter 86 (hereinafter called the "Company"), party of the Second Part.

Whereas, the Commission is duly incorporated under the provisions of an Act passed by the Legislature of the Province of Ontario, in the sixth year of His Majesty King Edward VII., and Chaptered 15, and under the provisions of said Act is authorized to contract with any Company generating electrical power or energy for a supply of electrical power or energy to the Commission:

And whereas, the Company, under the provisions of the Statutes of Canada, above recited, and under the provisions of certain agreements dated April 11, 1900, August 15, 1901, June 28, 1902, and February 28, 1903, between the Company and the Commissioners of the Queen Victoria Niagara Falls Park, to which agreements reference is specifically made, has constructed a series of works in the vicinity of Niagara Falls, Ontario, in which the Company is now generating electrical power, and is prepared to sell and deliver the same in the quantities hereafter mentioned;

And whereas, the Commission invited tenders for electric power to be supplied at or near the Niagara Falls, and the Company made the lowest tender for the supply of power to the Commission for their purposes under the provisions of the said Act;

And whereas, certain municipalities have applied to the Commission for the maximum price of such power at Niagara Falls, and for estimates of the cost of transmission to the said municipalities;

And whereas, the estimates of the Commission will be based in part upon this agreement, and the Commission will be required to devote time and skill and expend moneys in the preparation of such estimates, and such estimates are to be used by said municipalities for the purposes fully set forth in said Act;

And whereas, the Commission has declined other tenders and has decided to accept the tender of the said Company under the terms of this agreement;

Now therefore in consideration of the premises and of the mutual covenants and agreements herein contained and of other valuable considerations the parties hereto have mutually agreed, and do each agree with the other as follows:—

1. The Company hereby agrees:—

(*a*) At the expiration of ninety days' notice in writing by the Commission to the Company to deliver eight thousand (8,000) horse power or more to the Commission and the Commission hereby agrees to purchase and pay for the same.

(*b*) At the expiration of three months' like notice to deliver from time to time to the Commission in blocks of not less than one thousand (1,000) horse power each, additional power until the total so delivered shall amount to thirty thousand (30,000) horse power, and the Commission hereby agrees to purchase and pay for the same.

(*c*) At the expiration of nine months' like notice to deliver from time to time in like blocks additional power until the total so delivered shall amount to one hundred thousand (100,000) horse power, and the Commission agrees to purchase and pay for the same.

2. The Commission agrees to take power exclusively from the Company up to the said 30,000 horse power, and also in addition thereto one-half of the amount of power required by the Commission up to the said 100,000 horse power; thereafter the Commission may, at its option, take power from other sources.

3. The Company hereby agrees to deliver and the Commission to purchase and pay for the said several quantities of horse power on the terms and conditions of this agreement as hereinafter provided.

4. This agreement shall remain in force for ten years from the date of the expiration of the said ninety days' notice. The Commission may at its option continue this agreement for one, two or three further consecutive terms of ten years each by giving notice in writing of their intention to continue this agreement for the second term of ten years, at least three years before the expiration of the first term of ten years, and if the term be thus extended on giving notice of their intention to continue this agreement for third term of ten years by giving a like notice at least three years before the expiration of the second term of ten years, and if the term be then extended on giving notice of their intention to continue this agreement for the fourth term of ten years by giving a like notice at least three years before the expiration of the third term of ten years. This agreement shall not in any event extend beyond 1st April, 1950, the date at which the first term of years of the above recited agreement of the Company with the Commissioners of the Queen Victoria Niagara Falls Park, dated the 11th April, 1900, will expire.

5. This agreement is entered into subject to the provisions of *The Power Commission Act*, and neither the making of this agreement nor anything herein contained shall in any way limit or prejudice any right and power which the Commission may now have to expropriate the plant and apparatus of the said Company or any part thereof or the power generated by the said Power Company or any other Power Company, but nothing in this agreement shall be taken to give or enlarge any such power.

6. The electrical power herein contracted for shall be three-phase, alternating, commercially continuous twenty-four hour power every day of the year, except as provided in paragraph hereof.

7. It is hereby agreed by and between the parties hereto that the maintenance by the Power Company of approximately the agreed frequency at the line switch or switches of the Company shall constitute the delivery of all power involved herein and the fulfilment of all operating obligations hereunder, and that when voltage and frequency are so maintained the amount of the power, its fluctuations, load factor, power factor, distribution as to phases and all other electrical characteristics and qualities are under the sole control of the Commission, its agents, customers' apparatus, appliances and circuits.

8. The Company shall at all times use first-class modern, standard, commercial hydro-electric power apparatus and plant and the power shall be delivered at approximately 60,000 volts and at approximately twenty-five cycles per second, and the Company shall use first-class modern, standard, regulating apparatus and all due skill and diligence to maintain the power at such voltage and frequency.

9. The several blocks of power herein provided for shall be the amounts which the Company shall from time to time hold in reserve ready for the Commission, and the Commission shall not at any time take more than the amount so held in reserve for it.

The Commission shall so take power that the kilo-volt amperes so taken shall not at any time exceed by more than 5 per cent. the kilowatts held in reserve for it, and this provision shall apply proportionately to each circuit and phase.

10. The power herein provided for shall be measured by curve-drawing meters. These meters shall be subject to test as to accuracy by either party hereto.

The Commission shall pay for three-fourths of the power held in reserve for it, as herein provided, whether it takes the same or not.

When the greatest amount of power taken for any twenty (20) consecutive minutes during any month shall exceed three-fourths of the amount at that time held in reserve for the Commission, then it shall pay for this greater amount during that entire month.

11. The point of delivery shall be the property-line between the Company's Distributing Station and the right of way of the Michigan Central R.R. at Niagara Falls, Ontario, Canada, and at this point the Commission shall have the right to erect and maintain its initial line structure or structures.

12. In case the Company shall be prevented from delivering said power, or in case the Commission shall be prevented from taking said power, by strike, lock-out, riot, fire, invasion, explosion, act of God, or the King's enemies, or any other cause reasonably beyond their control, then the Company shall not be obligated to deliver such power during such period; and the Commission shall not be obligated to pay for such power during such period; but nothing herein contained shall be construed as permitting the Company to refuse to deliver power, or the Commission to refuse to take the same as soon as the cause of interruption is removed, and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes.

13. If interruptions occur in the service of the Company due to causes other than above, deductions shall be made as follows:—For interruptions less than one hour, double the amount payable for power for the time of such default, and for interruptions of one hour or more, the amount otherwise payable for the day.

14. The Commission and its customers shall select and use transformers and all apparatus most suitable to receive the electric power produced by the apparatus of the Company, and the Commission's transmitting, transforming, translating and all other apparatus and devices upon its circuits shall be of standard design and construction and shall be operated and maintained with special reference to securing the highest efficiency and most perfect operation, not only of its own, but also of the apparatus of the Company when receiving power from the Company; and the Commission shall instal upon and equip its circuits with such approved protective devices as are in commercial use and operate its circuits in such a manner as will to the then greatest extent protect the apparatus and circuits of the Company from damage and interruption by lightning, short circuiting or otherwise, so as to save harmless the Company from any damage that may arise in the use of the said power supplied by the Company to the said Commission.

After the happening of any of the events provided for in paragraphs 12 and 13 power shall be delivered first to the Commission before re-establishing power to any other customer or customers of the Power Company, provided that the Commission's lines are ready to receive such power.

15. It is recognized by both the parties hereto that the state of the art or production and transmission and application of electrical energy is subject to constant advance, and that it is impossible by contract to cover all requirements and conditions which time may develop, and the Company and the Commission with the approval of the Lieutenant-Governor-in-Council while adhering to the provisions of this agreement, will at any time upon the request of the other, take up and in good faith fairly consider, with the aid of their respective engineers, any features or changes of the system as a whole of the modifications of any of the provisions hereof, provided it shall appear to the party to whom such request is made that compliance therewith shall tend to make this agreement more effective and to make the venture of each party more successful and certain; provided, however, that any such action, or the failure on the part of either party to require of the other exact conformity to the provisions hereof, or any liberty or greater

latitude beyond the provisions of this agreement permitted by either party to the other, in the course of the co-operation implied by the spirit of this agreement, shall in no manner act as or constitute a precedent or amend or change the obligations of the parties hereto.

16. The Commission hereby agrees to pay to the Company for such power delivered under the terms of this agreement, the sum of ten dollars and forty cents ($10.40) per horse power per annum when the amount reserved and held ready upon the order of the Commission, for delivery under the terms hereof, is less than twenty-five thousand (25,000) horse power, and when the amount reserved and held ready for delivery upon like order exceeds twenty-five thousand (25,000) horse power, the Commission agrees to pay the sum of ten dollars ($10.00) per horse power per annum. The power shall be paid for monthly in gold coin of the present standard of weight and fineness, in twelve amounts, in each year at the office of the Company in Niagara Falls, Ontario, and bills shall be rendered for such payments on the first, and be paid on or before the fifteenth of each month.

17. At any time that the quantity of power which is being taken under this agreement by the Commission shall amount to sixty per cent. or more, of the total power which the Company is developing and a complaint is then made in writing by the Commission to the Company that the Company has so continuously neglected or failed to perform the terms of this agreement that the apparatus of the Commission or its customers cannot by reason of such neglect or failure of the Company be operated to full efficiency and the Company shall not within a reasonable time remedy such neglect or failure then the matter of complaint may be referred to the arbitrators appointed as hereinafter stated, and if the said arbitrators shall determine that there is a just ground of complaint they may by their award direct that the Company shall remedy such neglect or failure within a time to be fixed by the award, and if such neglect or failure be not remedied as directed by the said award the arbitrators may order that upon such terms as they deem reasonable including the rights of the other parties interested the whole of the plant apparatus and property of the Company shall be transferred to the Commission, whereupon on payment and satisfaction of the said terms the Commission may, with the approval of the Lieutenant-Governor-in-Council, take over said plant, apparatus and property, and the same shall be transferred to the Commission.

18. It is hereby declared and agreed that in case the plant, apparatus, buildings or premises of the Company or any part thereof shall at any time during the continuance of this agreement be damaged or destroyed so as to prevent the Company from supplying the said power of the quantity and quality hereinbefore provided for to the Commission and the Company is unable to supply the said power within a reasonable time to be fixed if necessary by the said arbitrators, the Commission may, with the approval of the Lieutenant-Governor in Council, terminate this agreement, and any questions as to terms of conditions connected with such determination of the agreement shall be settled by the said arbitrators.

19. It is further agreed by and between the parties hereto that, in case any dispute shall arise relating to the question of the performance or fulfilment of any of the terms provisoes or conditions of this agreement, or as to the method or accuracy of the measurement of the power or as to any other question which may arise under this agreement, the same shall be finally determined by two independent persons, one to be chosen by each of the parties to such dispute, and such arbitrators shall, before proceeding with the reference, appoint a third arbitrator to act with them, and the decision of the said three arbitrators or a majority of them shall be conclusive on both parties, and in case either of the said parties shall neglect or fail to appoint an arbitrator within thirty days after the request in writing by the other party, then the arbitrator appointed by the other party may proceed alone, and his award shall be conclusive on all parties. The award shall be made within four months after the appointment of the first of such arbitrators and, in the event of the two arbitrators appointed, as aforesaid, being unable or unwilling to agree upon a third arbitrator for two weeks after their appointment or the appointment of the one of them who was last appointed then such third arbitrator shall be chosen and appointed by the Chief Justice for the time being of the King's Bench Division of the High Court of Justice for the Province of Ontario or in the event of the Chief Justice being sick, absent from the Province, or otherwise unable or refusing to act, then such third arbitrator shall be appointed by any Judge of the High Court of Justice other than a local Judge. It is agreed that there may be an appeal by either party from any decision or award of such arbitrators

to the High Court of Justice for Ontario in accordance with the provisions of the *Arbitration Act* in that behalf.

20. Notwithstanding that there may be differences between the parties which may embrace the question of the supply or insufficiency of the power or the payment therefor or any other questions whatever that may arise under this agreement the Company shall continue to deliver the power and the Commission to pay therefor and both parties shall continue to carry out the contract notwithstanding such differences, and when the matters which may be in issue shall be finally determined by the reference as above provided, the parties shall deal with such matters according to the terms of the award that may be made on such reference. It being the distinct agreement between the parties that there shall not be during the period of the agreement any stoppage or cessation in the carrying on of the work, but that the same shall be continuous and any matters in difference shall not form a reason for interfering with the same but shall be accommodated in the manner herein provided.

21. The Company will not, directly or indirectly, deliver power in Ontario to any person or corporation that it is intended shall be supplied by the Commission under this agreement.

In case any difference arises as to such supply the same shall be settled by the said arbitrators.

This clause shall not, however, be held to cover or interfere with the supply of power agreed to be delivered by the said Company to any persons or corporations other than the Commission at the date on which the first block of power is ordered by the Commission from the Company under this agreement, but the said supply shall continue unaffected by this agreement.

22. The Company agrees that it will not exercise the right to cancel contained in the said agreement dated 11th April, 1900.

23. This agreement shall extend to and be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

24. This agreement shall have no force or effect until approved by the Lieutenant-Governor in Council.

In witness whereof the said Commission has affixed its corporate seal and has signed, sealed and executed the present agreement; and the Company acting by and through its President and Secretary duly authorized for all purposes hereof has hereunto affixed its corporate seal under the hands of the President and Secretary.

A. Beck,
John S. Hendrie.
W. K. McNaught.

(Seal.)

The Ontario Power Company of Niagara Falls.
J. J. Albright,
President.
Robert C. Board,
Secretary.

(Seal.)

SCHEDULE "B."

This Indenture made the day of 1908. Between The Hydro-Electric Power Commission of Ontario, acting herein on its own behalf and with the approval of the Lieutenant-Governor-in-Council (hereinafter called the "Commission"), party of the First Part, and The Municipal Corporations of (hereinafter called the "Corporations"), party of the Second Part.

Whereas pursuant to *An Act to provide for Transmission of Electric Power to Municipalities*, the Corporations applied to the Commission to transmit and supply such power from Niagara Falls, and the Commission entered into contracts with the Ontario Power Company of Niagara Falls, hereto attached, for such power at the prices set forth in the schedule hereto attached, and the Commission furnished the Corporations with estimates, as shown in said schedule, of the total cost of such power, ready for distribution within said Corporations, and the electors of the Corporations assented to By-laws authorizing the Corporations to enter into a contract with the Commission for such power, and the Commission have estimated the line loss and the cost to construct, operate, maintain, repair, renew and insure a line to transmit horse power of such power to the Corporations, and have apportioned the part of such cost to be paid by each Corporation as shown in said schedule;

Now therefore this Indenture witnesseth that in consideration of the premises and of the agreements of the Corporations herein set forth, subject to the provisions of said Act and of the said contracts, the Commission agrees with the Corporations respectively:—

1.—(*a*) To construct a line to transmit the quantities of electric power, shown in column 2 of the said schedule, from Niagara Falls to the Corporations, shown in column 1, respectively:—

(*b*) On the day of 19 to supply said power in quantities set forth in column 2 of said schedule, or as a minimum per cent., less, to the said Corporations within the limits thereof, ready for distribution at approximately the number of volts set forth in column 4 of said schedule, and approximately 25 cycles per second frequency.

(*c*) At the expiration of three months' written notice, which may be given from time to time during the continuance of this agreement, to supply from time to time to the Corporations in blocks of not less than horse power each, additional power until the total amount so supplied shall amount to 30,000 horse power.

(*d*) At the expiration of nine months' like notice which may be given from time to time during the continuance of this agreement, to supply from time to time to said Corporations in blocks of not less than horse power each, additional power until the total amount so supplied shall amount to 100,000 horse power.

(*e*) To use at all times first-class, modern, standard, commercial apparatus and plant and to exercise all due skill and diligence so as to secure the most perfect operation of the said plant and apparatus of the said Corporations.

2. In consideration of the premises and of the agreements herein set forth each of said Corporations agrees with the said Commission:—

(*a*) To pay the Commission for the quantities of power shown in column 2 of said schedule, or per cent. less as a minimum, to be supplied at said date, and for such additional power supplied or held in reserve upon such notices, the price set forth in column 3 of said schedule in twelve monthly payments, in gold coin of the present standard of weight and fineness, and bills shall be rendered by the Commission on or before the first and paid by the Corporations on or before the fifteenth of each month. If any bill remains unpaid for days, the Commission may, in addition to all other remedies and without notice, discontinue the supply of such power until said bill is paid.

(*b*) To pay annually interest at four per cent. per annum upon a proportionate part of the moneys expended by the Commission on capital account for the construction of the said line.

(*c*) To pay an annual sum to form in thirty years a sinking fund for the retirement of the securities to be issued by the Province of Ontario, for the payment of a proportionate part of the cost of the construction of said line.

(*d*) To pay a proportionate part of the line loss and the cost to operate, maintain, repair, renew and insure the said line.

(*e*) To keep, observe and perform the covenants, provisos and conditions set forth in said contracts, intended by the Commission and the said Company to be kept, and observed and performed by the said Corporations.

(*f*) To pay for three-fourths of the power supplied and held in reserve at said date and upon said notices, whether the said power is taken or not, and when the greatest amount of power taken for twenty consecutive minutes in any month shall exceed three-fourths of the amount during such twenty consecutive minutes, so supplied and held in reserve, to pay for this greater amount during that entire month. When the power factor of the greatest amount of power taken for said twenty minutes falls below 90 per cent., the Corporation shall pay for 90 per cent. of said power divided by the power factor.

(*g*) To take no more power than the amount to be supplied and held in reserve at said date and upon said notices.

(*h*) To use at all times first-class, modern, standard, commercial apparatus and plant to be approved by the Commission.

(*i*) To exercise all due skill and diligence so as to secure the most perfect operation of the plant and apparatus of the said Commission and said Company.

(*j*) To take such power exclusively from the Commission during the continuance of this agreement.

3. Unless determined as provided in said contracts this agreement shall remain in force for forty years from the said day , 19 .

4. Said power shall be three phase, alternating, commercially continuous

twenty-four hour power every day of the year except as provided in paragraph 6 hereof, and shall be measured by curve-drawing meters, subject to test as to accuracy by either party hereto.

5. The engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the said Corporations and take records at all reasonable times on giving to the Corporations six hours' notice of the intention to make such inspection. The said Corporations shall have a like right, on giving a like notice to inspect the apparatus, plant and property of the Commission.

6. In case the Commission or the Company shall at any time or times be prevented from delivering said power, or any part thereof, or in case the Corporation shall at any time be prevented from taking said power, or any part thereof, by strike, lock-out, riot, fire, invasion, explosion, act of God or the King's enemies, or any other cause reasonably beyond their control, then the Commission shall not be bound to deliver such power during such time and the Corporations shall not be bound to pay the price of said power at Niagara Falls during such time, but the Corporations shall continue to make all other payments, but as soon as the cause of such interruption is removed the Commission shall without any delay supply said power as aforesaid and the Corporations shall take the same and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

7. If and so often as any interruption shall occur in the service of the Company due to any cause or causes, other than those provided for by the next preceding paragraph hereof, the Commission shall recover and pay to the said Corporations as liquidated and ascertained damages, and not by way of penalty, as follows:—For any interruption less than one hour double the amount payable for power which should have been delivered during the time of such interruption, and for any interruption of one hour or more, the amount payable for the power which should have been delivered during the time of such interruption and twelve times the last mentioned amount in addition thereto and all moneys payable under this paragraph when the amount thereof is settled between the Commission and the Company may be deducted from any moneys payable by the said Corporations to the Commission, but such right of deduction shall not in any case delay the said monthly payments.

8. The maintenance by the Commission of approximately the agreed voltage at approximately the agreed frequency at shall constitute the supply of all power involved herein and the fulfilment of all operating obligations hereunder; and that when voltage and frequency are so maintained, the amount of the power, its fluctuations, load factor, power factor, distribution as to phases, and all other electric characteristics and qualities are under the sole control of the Corporations, their agents, customers, apparatus, appliances and circuits.

9. In case any of said Corporations, or any person, firm or Corporation which shall contract with any of said Corporations for supply of power furnished to the Commission by the Company shall suffer damages by the act or neglect of the said Company, and such municipal Corporation, person, firm or Corporation would, if the Company had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy the Commission shall be entitled to commence any such proceeding or bring such action for or on behalf of such municipal Corporation, person, firm or Corporation, and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal Corporation including the right to recover such damages, but no action shall be brought by the Commission until such municipal Corporation, person, firm or Corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceeding or action is unsuccessful. The rights and remedies of any such municipal Corporation, person, firm or Corporation shall not be hereby prejudiced.

10. The Commission shall annually adjust and apportion the amounts payable by municipal Corporations for such power and such interest, sinking fund, line loss, and cost of operating, maintaining, repairing, renewing and insuring the line and works.

11. This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

12. Notwithstanding anything hereinbefore contained this agreement shall not come into operation as against the Commission or be binding upon the Commission until, in addition to any other Orders in Council, pursuant to said Act, an Order in Council has been passed and approved by the Lieutenant-Governor in Council expressly declaring that this agreement shall from the date of such Order in Council be binding upon the Commission.

In witness whereof.

Column 1	2	3	4	5	6	7
Name of Municipal Corporation.	Quantity of power applied for in H.P.	Maximum price of power at Niagara Falls.	No. of volts.	Estimate maximum cost of power ready for distribution in municipality.	Estimate proportionate part of cost to construct transmission line for 30,000 H.P.	Estimate proportionate part of line loss and of part cost to operate, maintain, repair, renew and insure transmission line for 30,000 H.P.
Toronto	10,000		.....	$18.10	.....	.....

$9.40 for power at 12,000 volts until 25,000 H.P. or more, in all, are taken, then $9.00.
$10.40 for power at 60,000 volts until 25,000 H.P. or more, in all, are taken, then $10.00.
If power taken at higher voltage, price to be fixed by arbitration.

REPORT OF P. W. SOTHMAN, CHIEF ENGINEER.

NIAGARA DISTRICT TRANSMISSION.

Surveys, 1907.

The surveys for the route of the transmission lines to the municipalities to be fed from Niagara Falls were started in 1907.

Authority.

These surveys were undertaken in accordance with instructions contained in the minutes of the Hydro-Electric Power Commission meeting of June 13th, 1907, the extract pertaining to this matter reading as follows: "The Chief Engineer submitted a statement showing the number of additional men required to carry out the work of the Commission in connection with surveys, plans of inter-switching, transformer stations, etc., and it was decided to approve of same; and authorizing, if found necessary, the placing of four survey parties in the field, each party to consist of up to six men, all to provide their own outfits; and to engage such additional engineers as may be deemed necessary to carry out the plans of the Commission."

Acting upon these instructions, Assistant Engineers Richards and Acres were despatched immediately to make a reconnaissance survey of the district, taking in all the municipalities from which applications for power had been received. It was later found necessary to place Assistant Engineer Stocking in the field and all the reconnaissance work was performed by the three engineers above mentioned.

Reconnaissance.

Each section of country through which a projected line was to run was examined in detail by at least two members of the reconnaissance staff working independently. Daily reports were submitted by them to the Toronto office giving individual opinions as to the proper location of the projected line. When the work above described was completed on any section, your Chief Engineer made a tour of inspection and the final decision as to the location of the line rested with him, after weighing the recommendations of his assistants. In this way all phases of the problem were considered, and it is reasonably certain that the location as laid down in the plans are the best obtainable under existing circumstances.

General Governing Conditions.

In making these surveys the primary object was naturally to obtain the shortest and most direct route possible between points of local distribution, but this idea was of course modified by conditions, local and otherwise, which it was necessary to offset against the other.

Every effort was made to keep the located line parallel to the property lines and as close to the fences as possible. It was thought that this would have a decided tendency to reduce the right-of-way cost, as most land-owners would much prefer a line located in this way to one which would cut their fields diagonally, and the saving due to this should more than offset the cost of any small amount of extra line that might be necessary. Obstacles in the form of houses, barns and other buildings had also to be considered, but any changes in location due to this were comparatively unimportant.

A very important point to be considered in the line location is the liability of damage by lightning. On many existing transmission lines it has been observed that lightning trouble seems to be confined to more or less restricted localities so that while the greater part of the line is practically unmolested, lightning damage, usually in the form of broken insulators, occurs frequently on one portion of the line. Telephone and telegraph lines in several instances disclosed evidence of this trouble and care was taken to avoid these localities wherever possible.

Another contingency which it was considered advisable to allow for was the possible falling off in insulator efficiency due to smoke deposits accumulating on the lower surfaces of the insulators. With this object in view an effort was made to avoid paralleling railway lines where a large number of trains pass daily, and also to avoid railway stations and yards where there is any considerable amount of shunting. Although the liability of injury to the lines from this cause would be somewhat remote in the majority of cases, it seemed reasonable to consider the point in the general scheme. Information was also obtained with reference to the condition of various roads, it being desirable to ascertain if any were liable to be drifted in the winter, or flooded in the spring, to such an extent as to make them impassable.

It was necessary in some places to carry the line through heavy timber, this being done usually without any deflection or detour. The extra expense involved will be due not only to the cost of clearing the actual right-of-way, but because a strip varying in width from 25 to 70 feet must be cleared on either side of the right-of-way to insure the line against damage by wind-falls. These drawbacks are in a measure offset by the fact that heavy timber near the line has a tendency to lessen the lightning hazard and also affords a certain amount of wind protection.

New Methods of Construction.

These surveys differed from the usual 60,000 volt practice in this part of the country in that the possibility of carrying the line along the country roads has been considered. The mesh protection with which the line will be equipped and the substantial design of the towers will insure the public so completely against the possibility of accident, that it appears quite possible to carry out this idea wherever topographical conditions permit.

All the roads in the power district were examined with this object in view, the result being that the greater portion of the lines, as at present located, lie along the public roads. An effort was made to carry the lines along the least travelled roads and also along unopened road allowances wherever possible. The chief obstacles encountered were farmhouses and other buildings close to the line, and the lines of the Bell Telephone Company, pole-lines carrying from ten to thirty wires being frequently encountered throughout the district. Lines of shade trees along the road-sides complicated the problem to a certain extent, but any deviation from the direct line between points of local distribution is due principally to the causes first mentioned.

Advantages of New Method of Construction.

Among the principal advantages resulting from the proposed method of construction and the present location of the lines may be mentioned the following:

(1) Cheap right-of-way. The reduction in the cost of right-of-way owing to the use of the roads is easily apparent, but in addition to this, when it is necessary

to carry the line through private property the mesh protection will obviate the necessity for fencing the right-of-way. For this reason the land-owners will be able in most cases to continue using the land around the towers, the obstruction as regards cultivation being no greater than that caused by the wind-mill towers so common in the farmers' fields at the present time. This consideration should have a markedly favorable influence upon the cost of right-of-way.

(2) Reduction in transportation cost: a large item of expenditure during construction will be the cost of teaming construction material. The advantage of having the delivery points for this material along, or in the immediate vicinity of travelled roads is obvious.

(3) Better facilities for inspection and patrol. With the lines located in the manner above described a member of the engineering staff will be able to make periodic trips of inspection over the whole line in a comparatively short time. If the lines were carried across country, engineering inspection would consume a great deal of time and it would be necessary to entrust the bulk of this work to more or less inexperienced patrolmen.

For convenience, the district was divided into sections as follows:—

Section A.—From Niagara Falls to Hamilton and the Burlington Canal.
Section B.—From the Burlington Canal to Toronto.
Section C.—From Hamilton to Brantford.
Section D.—From Brantford to Woodstock.
Section E.—From Woodstock to London *via* Ingersoll.
Section F.—From Hamilton to Guelph.
Section G.—From Stratford to Guelph *via* Berlin, Waterloo, Preston and Hespeler.
Section H.—From London to Stratford *via* St. Marys.
Section I.—From London to St. Thomas.
Section L.—From Preston to Brantford *via* Galt and Paris.

There were also two short sections not classified as above, namely, a branch line from Humber Bay to Toronto Junction and a line from the location of the interswitching station near Stoney Creek around the bay to Burlington Village, intended as an alternative to the line across Burlington Beach.

Section A.—Niagara Falls to Burlington Canal.

Work on Section A. was begun on June 17th, 1907, at Niagara Falls and the preliminary line to the Burlington Canal, a distance of 44¼ miles was completed by August 25th, 1907. Locations and levels were begun at Niagara on August 26th and the survey was finally completed on October 1st, 1907.

In connection with this survey, it may be said that its cost averages more per mile than that of any other section. This is due partly to topographical conditions but mainly to the care and accuracy with which the survey was made. Taking into consideration the possibility of additional lines being at some future time built parallel to the original trunk line from Niagara Falls to Hamilton, the topography was taken with great care, the line was substantially located and the bearings of all property lines were established with a transit. The result is that the line as it stands will serve not only for the location of the original transmission line, but will furnish reference points for the location of any line to be built in the future.

The line through this section is believed by your engineers to be the shortest and most direct possible under existing conditions, but as in the case of the survey, the average construction cost per mile will be greater than elsewhere in the district.

This is due primarily of course to the greater line capacity required, but the cost will be still further augmented by reason of the comparatively large amount of special construction necessary. Between Niagara Falls and Burlington Beach it will be necessary to cross eight steam and electric railways, telephone and telegraph lines, five power transmission lines, and the Welland Canal. These crossings will involve the expenditure of a considerable sum for line insulators, crossing towers and labour, over and above that required for standard construction.

The located line after running out Dixon Street for three-quarter miles to the city limits of Niagara Falls, cuts straight across country to the Welland Canal at Allanburg, a distance of 5¾ miles. With the exception of one small deflection this portion of the line is an unbroken tangent across practically level country. Special construction will be necessary to cross the lines of the Wabash and Grand Trunk Railways near Allanburg and also at the Welland Canal. The canal crossing, as at present located, is a very favorable one, as the plans will show. The advantage of this crossing location is that the height of the canal banks on either side will reduce the height of the crossing-towers, which must be constructed so as to give 150 feet of clearance between the lower wires of the mesh protection and the surface of the canal.

After crossing the canal the line deflects to the right and runs diagonally across country for one mile till it reaches what is known as the Holland Road, and parallels this road just inside the southern line fence for 1¾ miles. It then takes another small deflection to the right and intersects with the produced line of an unopened road allowance across the St. John valley, this line being followed for two miles across the valley. It may be said in passing that some difficulty was anticipated in connection with the location of the line at this point, but the location as laid down is of such a nature as to insure a good line gradient and a reasonable length of span, and is on the whole much more favorable than would reasonably have been hoped for. After crossing the St. John valley the line parallels the road allowance between concessions 3 and 4 of the Township of Pelham to the township line between Pelham and Gainsboro, a distance of 4½ miles. At this point it crosses the transmission line of the Toronto-Niagara Power Co., and parallels the Toronto-Niagara right-of-way through Gainsboro, Clinton and a short distance into Grimsby Township, in all a distance of ten miles. In Grimsby Township the line meets the road allowance between concessions 5 and 6, which it follows to the township line between Grimsby and Saltfleet, a distance of five miles. This road allowance is unopened for the greater part of the distance and the line is located upon the right-of-way. At this point the line crosses the main line of the Toronto, Hamilton and Buffalo Railway and one of the Cataract Power Company's transmission lines, which is located on the railroad right-of-way. The line is here slightly deflected to the left to meet the road allowance between concessions 5 and 6 of the Township of Saltfleet, which it parallels for six miles to the side road between lots 22 and 23 in the 5th concession of Saltfleet. At this point thirty-six and three-quarter miles from the Ontario Power Company's transformer station, it is proposed to erect the main interswitching station for the distribution of power to the eastern and western lines. Leaving the interswitching station, the line follows the side-road above mentioned to where it is crossed by the transmission line of the Toronto-Niagara Power Co., a distance of 2½ miles. In this distance special construction will be necessary to carry the line over the escarpment which at this point drops 270 feet in 1,000. It will also be necessary to cross one of the Cataract Power Company's transmission lines, the main line of the Toronto, Hamilton and Buffalo Railway and the Hamil-

ton, Grimsby and Beamsville Railway. Upon reaching the point above specified the line swings to the left and parallels the Toronto-Niagara right-of-way for two miles, crossing in this distance the main line of the Grand Trunk branch line across Burlington Beach, following the right-of-way to the Beach Road, a distance of 1½ miles. For the rest of the distance, 2¼ miles, the preliminary line is run along the Beach Road to the canal, but no definite location was made on this section. In this connection it may be said that considerable structural difficulty is anticipated in carrying the line across Burlington Beach owing principally to the restricted space, there being at present one steam road, one electric road, a telephone line, a telegraph line, and two power transmission lines located thereon. At the narrower portions of the Beach the congestion is serious and the only apparent alternative, in case the Beach route is adopted, is either to support the line on towers much higher than those of standard type or to carry the line around the shore of the bay on standard towers set on concrete footings. As yet no final decision has been arrived at, it being thought advisable to first consult the local authorities, and final location was laid over pending their ultimate decision.

The crossing of the Beach Canal will also involve considerably more structural difficulty than in the case of the Welland Canal. Here, as in the case of the Welland Canal, 150 feet clearance to water-level is required in the interests of navigation, and the topographical conditions are such as to require a much more expensive steel structure than will be necessary in the case of the Welland Canal.

Section B.—Toronto to Burlington Canal.

Work on Section B was begun on July 2nd, 1907, at Toronto, and the preliminary line to the Burlington Canal, a distance of 38½ miles, was completed by August 11th, 1907. Location and levels were started at Toronto on August 12th, 1907, and the survey was finally completed on October 2nd, 1907. The survey between Humber Bay and Toronto Junction was commenced on October 7th, 1907, and completed on October 13th, 1907.

The survey of this section was carried out in a manner similar to that of Section A., but with a slightly less degree of accuracy as the lesser importance of the line warranted. The line, however, has been established in a substantial manner, and as in the case of the Niagara-Burlington section, will serve for the location of subsequent lines should their construction become necessary.

Taking into consideration topographical conditions, natural and otherwise, the line as located is believed to be the most direct possible, and the one which will require the least amount of special construction. As was to be expected, the chief difficulties encountered were at the extremities of the line, in connection with the entrance to Toronto, and the location of that portion of the line across Burlington Beach which is included in Section B. As regards Toronto, it will involve considerable structural difficulty to carry the line to a centrally located sub-station, and the final location of the entrance line should be largely a matter of adjustment between the city authorities and the members of the Power Commission. The reason for not establishing a final location across the Beach has been explained in connection with the survey of Section A.

Upon leaving the city limits, the line crosses Grenadier Pond, Ellis Avenue, Windermere Avenue, Jane Street and the Humber River on the same tangent. From the west bank of the Humber the line takes a deflection to the right and runs across to intersect with College Street, which it follows across Mimico Creek to Church Street, concession B, a distance of 2¼ miles from the city limits. Con-

tinuing on the same tangent the line here crosses a stretch of farm land, keeping close to the property lines, and meets the road between concessions 3 and 4 of Etobicoke, which it follows for one mile till it crosses the transmission line of the Toronto-Niagara Power Co. The line then leaves the road, deflects a short distance to the left then takes a deflection to the right, crosses Etobicoke Creek and runs across country for 3½ miles till it meets the gravel road between Port Credit and Cooksville, 9¼ miles from Toronto city limits. Crossing this road it follows what is known as the Indian Road across the Credit River until it meets the gravel road between Erindale and Port Credit, a distance of 3½ miles. From here the line again runs across country for five miles till it meets the seventh side-road of Trafalgar Township in the County of Halton, two miles north of Oakville. The line here deflects to the left for half a mile and intersects with the road allowance between concessions 1 and 2 of Trafalgar, following the road across Oakville and Bronte Creeks as far as the gravel road running north out of Burlington, a distance of 11 miles. The line then follows this road south for a mile, when it swings off to the right past the western extremity of Burlington Village, crosses the main line of the Grand Trunk and parallels the right-of-way of the Grand Trunk line across the Beach as far as the lake shore, after which it follows the Beach road to the canal.

Between the city limits of Toronto and Burlington Beach it will be necessary to cross two steam railroads, one power transmission line, and one telephone line. Water crossings include Grenadier Pond, the Humber River, Mimico Creek, Etobicoke Creek and Bronte Creek. Long spans, involving special tower construction, will be necessary to cross Grenadier Pond, the Humber River and Oakville and Bronte Creeks. All other line construction, with the exception of corner and transposition towers, will be of standard and uniform type, within the limits above specified. It will be noted that the number of artificial obstructions on this section is small as compared with Section A, but on the other hand the natural conditions and the highway system combine to make location less favorable and construction more difficult than will be the case in Section A. On portions of the cross-country sections it was found impossible to locate the line favorably with regard to the lot lines. On account of the thick stratum of red clay which overlays bedrock, the streams in this section lie either in wide, deep, heavily wooded valleys or in deep ravines with precipitous clay banks on either side. As before mentioned, special construction will be necessary at many of these points. Transportation costs will also be affected owing to the fact that some of the road allowances are unopened across these streams, a detour of two or three miles being necessary in some cases to cross them.

Section C.—Brantford to Hamilton.

Work on Section C was commenced in Brantford and the line was carried through and tied into the Niagara-Hamilton line at the proposed location of the main interswitching station, the distance being 27½ miles. The adoption of this line will involve a considerable amount of special construction within the corporation limits of Brantford, the line being very crooked, with short tangents and large deflections. The same conditions exist more or less as far as Cainsville. The general direction of the line changes after leaving Cainsville, swinging off to the left and travelling across country for 6½ miles to the county line between Brant and Wentworth. This portion of the line, although direct, has one serious disadvantage in that it crosses lots diagonally, although topographical conditions are otherwise

fairly good. After reaching the Brant County boundary the line meets the road allowance between concessions 4 and 5 of the Township of Ancaster. It follows this road as far as the township line between Ancaster and Glanford, a distance of 7¼ miles, from which point it again runs across country, cutting lots diagonally, as far as Mount Albion, a distance of 5½ miles. The line here continues across country till it meets the road allowance between concessions 5 and 6 of Saltfleet, following this road for three miles, where it ties in with the Niagara-Hamilton line at the site of the proposed interswitching station.

In view of the generally unfavorable location of the line above described, it was later thought advisable to run another line through this section to the north of the one above described. This new line tied in with the line through Section D about three miles north-west of Brantford on the road allowance between Concessions II. and III. of Brantford Township. The line follows this road across the Grand River as far as the county line between Brant and Wentworth, a distance of 3½ miles, the last two miles of the road allowance being unopened. The line follows the County boundary for two miles till it reaches the produced road allowance between Concessions 3 and 4 of Ancaster. It then follows the unopened section of this road for two miles and continues along the travelled section of this road for 7¼ miles as far as the township line between Ancaster and Barton. It then takes a small deflection and travels across country for 2½ miles till it meets the road allowance between concessions 6 and 7 of Barton and follows this road 3¼ miles to Mount Albion. It then takes a deflection left across country for two miles till it meets the road allowance between concessions 5 and 6 of Saltfleet, following this road for 1½ miles till it ties in with the Niagara-Hamilton line at the site of the interswitching station, the total length of this line being 28¾ miles. On this line it will be necessary to cross five steam and electric railways, one high voltage transmission line and two telephone lines. Special construction may also be required at the crossing of the Grand River. The west bank of the river is high, but the opposite bank is quite low and although enquiry and investigation appears to indicate that it has never been flooded it will probably be deemed advisable to put in special tower foundations. For two miles along the road allowance between concessions 3 and 4 of Ancaster, the line is paralleled by an eight-wire G.N.W. telegraph line, which will give trouble, owing to the fact that it crosses and re-crosses the road several times in this distance.

As above described the greater part of this line lies upon opened roads and with the exception of the two-mile section above mentioned, the conditions are favorable. There is considerable timber on the cross-country sections and the lots are cut diagonally, but none of these sections are of sufficient length to seriously affect the line as a whole. The location through Ancaster Township is not so favorable by this line as by the south line originally surveyed, but all things considered the north line is much to be preferred, as it is more direct, less liable to be affected by floods and will be much easier to patrol and repair, as it lies mainly along the roads.

The interswitching station connecting this line with the Preston line is situated about a mile and a half from the load centre of the City of Brantford and forms a convenient point for connecting a spur line to feed this city.

Section D.—Woodstock to Brantford.

After leaving the proposed sub-station site at Woodstock, this line runs across lots for 0.3 of a mile to meet the road allowance between concessions 1 and 2 of

East Oxford, following this road for 6¼ miles to the county line between Oxford and Brant. The line continues along this road through Burford Township for 9½ miles as far as the township line between Burford and Brantford, and then swings southward across country for 3¼ miles till it reaches the road allowance between concessions 2 and 3 of Brantford. At this point it ties in with the north alternative line surveyed between Brantford and Hamilton. From here the line continues across country for 4¾ miles with some small deflections until it reaches the corporation limits of West Brantford, whence it runs along the West Brantford dykes and ties in with the south line surveyed from Brantford to Hamilton. The total length of line from Woodstock to Brantford is 23¼ miles.

Concerning the line above described, it may be said that in no other part of the district has a location been obtained so uniform and altogether favorable, there being no special construction necessary of any kind, other than the erection of two or three corner towers. There are no railway or large stream crossings and only five telephone line crossings. The chief drawback in connection with this line is the cross-country section, but apart from the fact that the line crosses the lots diagonally, the topographical conditions are very favorable.

Section E.—London to Woodstock.

As in the case of Toronto, a line entrance has been surveyed into the City of London, but its final adoption is still an open question, pending the joint decision of the Commission and the municipal authorities.

Leaving the site of the London interswitching station the line runs across country for 3½ miles, paralleling the river as to general direction till it meets the given road following the north bank of the Thames through Dorchester. The line follows this road for one mile, then crosses the main line of the Grand Trunk and parallels the right-of-way for 3¼ miles past Dorchester till it meets the road allowance between concessions 4 and 5, Dorchester Township, which it follows for 3¾ miles to the county line between Middlesex and Oxford. The line continues along this road for 3¾ miles through the Township of North Oxford to a point half a mile west of Ingersoll, where it crosses the Grand Trunk main line and the Thames river and covers the remaining distance to the sub-station site in Ingersoll, the total length of line from London being 17 miles.

Leaving the Ingersoll sub-station site the line swings to the right across the river and follows a direction approximately midway between the river and the Canadian Pacific Railway for 4¼ miles to within a short distance of Beachville. The line then takes a deflection to the left to avoid the village, and crosses the river and runs between the river and the Grand Trunk main line for four miles where it again crosses the Thames at the corporation limits of Woodstock and runs into the proposed sub-station site, the total distance from Ingersoll being 9½ miles.

The first stretch of line from the London interswitching station to the Dorchester road, runs across country on one tangent. Its diagonal direction with reference to the lots is the main topographical feature of this portion of the line. A number of groves of large trees and some cedar swamp is encountered, but the general layout is good and land damages should be reasonable, as a good portion of the land crossed is not cultivated.

No serious obstacles will be encountered on the road allowance between Dorchester and Ingersoll, there being no telephone or telegraph lines upon it, and the buildings as a rule are well back from the road.

Between Ingersoll and Woodstock it was not found practicable to make use of the roads, but the line lies almost wholly on uncultivated land, so that damages should not be excessive. The chief item will be in connection with clearing as the route is thinly but uniformly overgrown with hardwood timber. It will be necessary to further examine this section of the line during the spring when the Thames is in flood, to ascertain whether any portions of the line are below the limits of flood-water. Portions of the line evidencing this condition will probably require re-location.

Between London and Woodstock it will be necessary to cross three steam and one electric railway, and six telephone lines. Five crossings of the south branch of the Thames will also be necessary but no special construction will be required. These figures do not include the portions of the line within the city limits of London and Woodstock, the amount of special construction depending in this case on the final location of the respective sub-stations.

Section F.—Hamilton to Guelph.

Work on Section F was commenced at the site of the main interswitching station near Stoney Creek and the line as located follows the opened section of the road allowance between concessions 5 and 6 of Saltfleet for 1½ miles. It then follows the produced line of this road allowance across a valley formed by the Niagara escarpment until it meets the road allowance between concessions 5 and 6 of Barton Township, following this road for 4¾ miles, after which it takes a considerable deflection to the right and runs direct across country for 6½ miles till it meets the township line between East and West Flamboro' in Wentworth County, following this road for 8½ miles. It then swings off to the right across country for 1¾ miles till it meets the road allowance between concessions 8 and 9 of Puslinch, in the County of Wellington. It follows this road for 11 miles as far as the Canadian Pacific Railway crossing, at which point it swings in to the left to the city limits of Guelph, the total length of line from the main interswitching station to the site of the sub-station in Guelph being 37½ miles. This line crosses three steam and two electric railways, two telegraph lines and five telephone lines. One unfavorable feature in connection with this line is that it is necessary to parallel a four-wire telephone line for fifteen miles and a twenty-wire line for 2¾ miles.

Special construction will also be necessary to cross the Dundas marsh, where towers in many cases will have to be placed on concrete or pile foundations. Over the greater portion of this route the country is hilly and irregular in consequence of which the line gradient will be effected and construction cost will be greater than over more regular sections. Apart from the Dundas marsh any low ground encountered will give no trouble.

Section G.—Guelph to Stratford.

On leaving the city limits of Guelph the line follows the Speed River for two and one-half miles, crossing it five times in this distance, till it reaches the Waterloo Road, which it follows for three and one-half miles to within half a mile of the county line between Wellington and Waterloo. Here it takes a deflection to the left and follows the produced line of an unnamed given road to the immediate vicinity of the town of Hespeler, a distance of one and three-quarter miles, the total length of line between Guelph and Hespeler being seven and three-quarter miles.

The line skirts the north-western section of the town for 1½ miles when it swings to the left, crossing the Speed River and the Galt, Preston and Hespeler Railway near the western corporation limits. At this point it takes a deflection to the right and parallels the general direction of the Galt, Preston and Hespeler right-of-way to the vicinity of the corporation limits of Preston, a distance of 1¼ miles. The line here swings to the right, crossing the river and the electric railway and running a short distance to the proposed sub-station location within the town. The total length of line from Hespeler to Preston is 2½ miles.

Leaving the sub-station location again the line runs north-west across country for 1¼ miles, till it meets the line of the Preston and Berlin Electric Railway, which it parallels for one half mile. It then runs across country for 2¼ miles till it reaches the vicinity of Centreville, where it runs through the village and parallels the right-of-way for three miles, to within a short distance of the City limits of Berlin, from which point two alternative lines have been run in to the proposed sub-station location, the total length of line from Preston to Berlin being 7¾ miles.

Leaving Berlin the line skirts the western limits of the city and approaches to within distribution distance of Waterloo, 1½ miles from Berlin sub-station. Here the line takes a deflection west across country for two miles till it meets the Erb Road which it follows for 1¾ miles to the Township line between Wilmot and Waterloo in the county of Waterloo and follows this road for five miles, with a detour round the village of St. Agatha, as far as the second side-road in Wilmot. A deflection of about forty-five degrees is made here and the line runs across country for 2½ miles till it meets the Snider Road, half a mile west of Baden. It here angles to the west across country for 2¼ miles as far as the County line between Waterloo and Perth, and meets the road allowance between concessions II. and III. of Easthope North in Perth County, which it follows for 10¼ miles, after which it swings off across country for two miles to the corporation limits of Stratford, where it approaches the site of the proposed sub-station. The total length of line from Berlin to Stratford is 26½ miles. In this district also a direct alternative line was surveyed between Guelph and Berlin. This line follows the same route as the one above described as far as the Waterloo Road 2½ miles from Guelph. The direct line here branches off and follows the road allowance between lots three and four of Division B in the Township of Guelph for 3¼ miles as far as the County line between Wellington and Waterloo. The produced line of this road is then followed for one quarter mile across country when it swings to the right and follows a short road allowance for three-quarter miles. Keeping the same general direction the line continues for 4½ miles across country when it swings to the left and follows for 2¾ miles along another section of apparently given road and this road produced till it crosses the line of the Preston and Berlin Electric Railway, at which point it ties in with the original line, running thence into Berlin. The total distance from Guelph to Berlin by this route is 16½ miles.

Between Guelph and Hespeler the line parallels a two-wire telephone line and crosses it twice. It also parallels a two-wire telegraph line and crosses it several times, so that special construction or arrangement will be necessary. The portion of the route paralleling the general direction of the Galt, Preston and Hespeler Railway runs for the most part through meadow land and scrub timber, none of it being very valuable, and though somewhat low, no danger from flood is anticipated. In this district the line crosses the electric railway twice and is always accessible from it.

Between Preston and Berlin the line parallels the Preston & Berlin Electric Railway and a main line of the Bell Telephone Co., for three miles, crossing the railway twice. The line also crosses the Grand River, but no special construction will be necessary.

A short distance west of Waterloo the line crosses a two-wire telephone line and parallels it for four miles. Near St. Agatha the line crosses a second two-wire telephone line. In the detour at St. Agatha the line follows the property line dividing the old and new portions of the Catholic Cemetery, but as it will not be necessary to place towers on the property no difficulty is anticipated with regard to right-of-way.

The tangent across country north of Baden passes for a short distance through rather heavy hardwood timber, the remainder being through open farm land. North of the Snider Road, a swamp, one-quarter mile long is crossed. No special construction will be required to cross the Nith River.

The whole section between Waterloo and Stratford is over country which is rather more irregular than could have been desired, but it is believed that the line above described is the best obtainable.

Section H.—Stratford to London.

On leaving the sub-station location at Stratford the line runs westerly across country for four miles to the second side-road of Downie, in the County of Perth, following this road for 5½ miles to the crossing of the Sarnia line of the Grand Trunk. Crossing the railway the line angles across country for 1¼ miles into the corporation limits of St. Mary's, the total distance from Stratford being 11¼ miles. Leaving St. Mary's, the line follows the third side-road of Blanchard for 1¼ miles to the county line between Perth and Middlesex, from which point it angles westerly across country for three miles to the sixth side-road of Nissouri West, a short distance west of the village of Wellburn, following this road for four miles to within half a mile of the village of Devizes, where it swings to the left across country for 2½ miles as far as the first side-road of London Township. The line continues along this road for ten miles till it crosses Dundas Street (the Governor's Road). From this point the line deflects westerly for 1¼ miles down to the Gore Road, which it follows for one mile, thence skirting the eastern limit of the city of London and tying in with the London-Woodstock line at the site of the interswitching station. The total distance from St. Mary's to London by this route is 24 miles.

With the exception of two crossings of the Grand Trunk Sarnia line no special features exist between Stratford and St. Mary's. Low places are occasionally encountered, but no great trouble is anticipated from this cause.

Between St. Mary's and the London interswitching station are three crossings of the Grand Trunk and one of the Canadian Pacific. The line also crosses the Thames River at two points, one crossing requiring special construction. The line parallels a one-wire telegraph line for 1¾ miles and crosses four telephone lines and two telegraph lines exclusive of the lines located on the railways.

As before mentioned a line was also surveyed along the Grand Trunk between London and St. Mary's. This line was much more direct than the one above described, but was abandoned owing to the possibility of the line insulation being affected by smoke.

Section I.—London to St. Thomas.

This line was run from the proposed site of the London interswitching station. Leaving this point the line crosses the south branch of the Thames River, running south to the road allowance between lots 18 and 19 of concession 1 of Westminster, County of Middlesex, a distance of one-half mile. It follows this road for three miles, as far as Wilton village, making a slight detour at the village of Pond Mills, after which it follows the produced line of this road along the lot lines as far as the county line between Middlesex and Elgin, a distance of 5¼ miles, running west along the county line for one-half mile and turning south again at the first road allowance. It then follows this road for four miles as far as the crossing of Kettle Creek, at which point the line angles to the right and follows the creek valley for 1¾ miles, which carries it into the sub-station location in St. Thomas. The total distance from London to St. Thomas by this route is 14¼ miles.

This line as a whole is favorable, the cross country sections being for the most part parallel and close to the lot lines, except where the line follows Kettle Creek into St. Thomas. Here, however, the land is uncultivated. One crossing of the Thames River is necessary just leaving London. Special construction will be necessary here on account of the long span and the difference in elevation of the banks. There are also two railway and two telephone line crossings. Near the village of Pond Mills one portion of the line will be flooded in the spring but not more than one tower will require special treatment on this account.

A portion of the cross county line is thinly wooded with heavy timber and a number of deep ravines are encountered, none of which, however, will make special construction necessary as they can be crossed by standard spans.

Section L.—Preston to Brantford.

The survey of this line was commenced at the sub-station location in Preston. Leaving the sub-station the line takes a south-westerly direction for 1½ miles, crossing in this distance the Grand River and the Grand Trunk Railway, and continuing to the township line between Waterloo and North Dumfries. It deflects to the left at this point and follows a short section of given road for one mile, thence running half a mile across country with a slight deflection right, meets the end of the side-road between lots 18 and 19 of concession 11 of North Dumfries, crossing the Canadian Pacific Railway and following this road for 11½ miles across the Grand River through Glenmorris and across the old main line of the Grand Trunk as far as the township line between South Dumfries and Brantford, in the County of Brant. It then angles across country for half a mile to meet the road allowance between lots 24 and 25 in concession 1 of Brantford, continuing along this road for two miles to tie in with the London-Brantford-Hamilton line at the proposed site of the Brantford interswitching station. The total distance from Preston by this route is 20 miles.

There is very little cross country line in this section, roads being followed for nearly the whole distance. The concession road through North Dumfries will require some clearing as the sides of the right-of-way are overgrown with fairly heavy timber for about 10 miles, but apart from this the roads used are very favorable, being little travelled and clear of artificial obstruction.

On this line there are two water crossings, neither of which will require special construction, although the crossing of the Grand River will require a span

somewhat longer than the standard. It will be necessary to cross four steam and two electric railways and two telephone lines. Several swamps are encountered and in one or two cases the crossing of them will entail a certain amount of special construction in connection with tower footings.

It will have been noticed that in the description of the various lines no detailed descriptions have been given of the line entrances to the different municipalities. It was thought advisable to omit these for several reasons, but principally owing to the part previously mentioned that the sub-station locations have so far been merely tentative, and until their location has been finally established through consultation with the various municipal authorities, no entrance location can be regarded as final.

Summary of Mileage as Surveyed.

Niagara Falls to main interswitching station	36¾	miles.
Main interswitching station to Toronto	41	"
Humber Bay to Toronto Junction	4½	"
Main interswitching station to Guelph	37½	"
Guelph to Hespeler	9¼	"
Hespeler to Preston	3½	"
Preston to Berlin	7¾	"
Berlin to Waterloo	1½	"
Waterloo to Stratford	25	"
Stratford to St. Mary's	11½	"
St. Mary's to London (second line)	24	"
London to St. Thomas	14¼	"
London to Ingersoll	17	"
Ingersoll to Woodstock	9½	"
Woodstock to Brantford	23¼	"
Brantford to main interswitching station	28¾	"
Preston to Galt	5½	"
Preston to Brantford	20	"

Supplementary.

Owing to the method of charging for power which the generating company proposes to adopt, namely, a monthly charge based on the 20-minute maximum value of the peak load for each month, it is evident that during certain portions of each day the amount of power being actually used will be considerably less than the quantity upon which the monthly charge is based. The problem, therefore, was to evolve some means of using this spare power, the use of which would cost the system nothing.

Having this end in view a careful study of the problem is in progress and estimates are being prepared for the construction of what has been called a Hydraulic Accumulator system. Investigation is not sufficiently far advanced to furnish details of the scheme at present, but there is no doubt as to its feasibility from a structural and operating standpoint, and it only remains to ascertain whether or not its economic influence upon the transmission system will be sufficiently great to warrant serious consideration.

If the results of this investigation are such as to justify the opinion of your Chief Engineer, details of the scheme will be presented in a supplementary report, together with a recommendation for the construction of a plant on the site selected.

In this event, the accumulator plant and the main interswitching apparatus would be installed in the same building. This would mean altering the present assumed location of the interswitching station as indicated elsewhere in this report

and it would also involve some changes in the present location of the lines in the neighborhood of Hamilton. This arrangement would make the system in this locality much more compact and would greatly reduce operating charges. It would also obviate the necessity of carrying the Toronto line across Burlington Beach, the result being the elimination of the most difficult construction problem in the whole district.

In conclusion, it may be said that although in the future it may be deemed expedient to alter in detail some portions of the location assumed as final in the foregoing report, the lines as a whole are believed by your engineers to be located in such a way as to serve the municipalities involved equally and with a maximum of efficiency and reliability.

All of which is respectfully submitted.

(Signed), P. W. Sothman,

Chief Engineer.

ADDITIONAL SURVEYS IN THE NIAGARA POWER DISTRICT DURING THE YEAR 1908.

Authority.

These surveys were undertaken in accordance with a resolution passes on May 5th, 1908 by the Commission, authorizing the Chief Engineer to place a survey party in the field "to engage in a survey of proposed changes in the transmission line."

Acting upon these instructions, preparations were immediately commenced for organizing the field party and beginning actual operations. There was practically no reconnaissance work necessary in this case, as the country had been fully covered during the previous season. The work was carried on without interruption till the middle of November, 1908, and a summary of the work accomplished will be found hereunder.

Causes Relating to Necessity for Further Surveys.

In the report on surveys for 1907, it will be remembered that the location of the lines and the manner of carrying out the work was based upon the following facts and assumptions:

(1) The limiting voltage was to be 60,000.

(2) Pin insulators were to be used.

(3) The lines were to be located as far as possible upon the public roads.

(4) No decision at that time had been reached as to whether cross-country right-of-way was to be acquired by outright purchase or by the easement plan.

(5) Mesh protection was to be used.

(6) It was originally intended that all municipalities involved in the transmission scheme were to be supplied direct from the high tension lines.

In the meantime, however, the suspended type of high tension insulator had passed the experimental stage and was being manufactured commercially. In view of the successful operation of various 80,000 and 100,000 volt lines in the Western States, your Commissioners deemed it advisable to make a careful investigation of the possibilities offered by this new type of construction. The facts and figures collected as a result of this investigation proved so satisfactory that it was considered justifiable not only to adopt the suspended type of insulator, but to raise the pressure to 110,000 volts, this being the highest voltage on any line yet built or projected. As a result, therefore, all specifications were prepared and tenders invited for the construction and equipment of a line having a transmission pressure of 110,000 volts.

As a result of this decision the transmission towers were considerably increased in height and base area and the length of cross arm increased to accommodate the wider conductor spacing necessary for the greater voltage. On account of this the scheme of mesh protection was abandoned as its construction under the new conditions would have involved an unreasonably large capital outlay and would have produced a dangerous strain in the towers as at present designed. The dimensions of the new towers and the overhanging conductors also did away with the possibility of locating the lines on the road allowance and the increased voltage precluded the possibility, in some cases, of carrying the high tension lines directly into the substation locations.

Conditions affecting the 1907 surveys as a result of the foregoing may be summarized as follows:

(1) All lines had to be located inside the fence lines and entirely off the road allowance.

(2) Line entrances hitherto considered safe for 60,000 volts with mesh protection had to be abandoned.

(3) Sections of road hitherto considered suitable had to be abandoned in view of the large number of houses and other artificial obstructions located near the fence lines.

(4) The limitation mentioned in clause 2 above was overcome by establishing centrally located transformer stations which are designed to serve by radial low tension distribution, such municipalities as are within economical transmission distance of the various stations. This resulted in a material reduction in high tension mileage and a subsequent abandonment of high tension location as established by the surveys of 1907; also owing to the necessary changes in route, a considerable amount of entirely new survey was required.

Another cause for a material alteration in line location was the moving of the site of the main interswitching station from Stony Creek to the site of the proposed hydraulic accumulator plant near Dundas. This change not only involved the abandonment of the line across Burlington Beach, and a new survey around the head of Burlington Bay, but also that portion of the line which paralleled the transmission of the Toronto-Niagara Power Company. The only reason for adopting this line originally was to swing the line north to reach the Beach crossing. With this crossing eliminated, however, there was no other logical course than to locate a new line following the roads as much as possible, which was accordingly done.

It will be seen from the foregoing what effect these radical changes in the general scheme had upon the line locations as established in 1907, and what urgent necessity there was for the supplementary surveys undertaken in 1908 upon the recommendation of your Chief Engineer.

Division into Sections.

For the most part the district was divided into much the same sections as in 1907, the divisions at present in use being as follows:—

Section A.—From Niagara Falls to main interswitching station near Dundas.
Section B.—From main interswitching station to Toronto.
Section C.—From main interswitching station to the western limits of Brantford Township.
Section D.—From Brantford Township to Woodstock.
Section E.—From Woodstock to London.
Section F.—From main interswitching station to Guelph.
Section G.—From Guelph to Stratford *via* Preston and Berlin.
Section H.—From London to Stratford.
Section I.—From London to St. Thomas.

Section A.—Niagara Falls to Main Interswitching Stations.

Beginning at the western limits of the City of Niagara Falls, the original survey ran for 5¾ miles straight across country to a point on the Welland Canal near Allanburg. As this line is somewhat inaccessible it was deemed advisable to

run an alternative line which should follow the roadway as far as possible to the same point on the canal. This new portion of the line was therefore surveyed and was found to be 6½ miles long. Owing to the difficulty of securing right-of-way along this new line and the extra cost of construction, it may be abandoned for the original route.

From Welland Canal to Gainsboro Township the route of the previous year has been followed as it is the most direct, and also because very favorable crossings of the Welland Canal and the St. John's Valley had been selected. From here, to the end of the section, owing to the shifting of the main interswitching station from Stony Creek to Dundas, and also to the desirability of keeping as far as might be from other transmission lines, an entirely new route has been surveyed.

Upon reaching Gainsboro Township, the new line, instead of making an angle towards the north as in the previous survey, continues in the same general direction along the roadway between concessions 5 and 6 of this township, then along the roadway between concessions 6 and 7 of Caistor Township. From here it follows the roadway between concessions 1 and 2 of Binbrook and Glanford Township to Ancaster Township, where it deflects to the north. Passing over this escarpment southwest of Hamilton, it crosses the Des Jardins Canal and continues across country to the main interswitching station.

With the exception of the crossing of the St. John valley and of the section near the Des Jardins Canal, the country along the whole of the route is comparatively level and well adapted for line construction. This new route from the Welland Canal to the interswitching station has the further advantage of following roadways for over 83 per cent. of its length. The entire distance from the city limits of Niagara Falls to the interswitching station is 52¾ miles. In this distance the line crosses four steam railways, three electric railways, two canals and five high tension power lines.

Section B.

From Dundas Station to Nelson Township an entirely new route has been surveyed. The section of country lying between these two points is the roughest encountered on any of the systems, and exceptional care was necessary to select the most suitable route. The line as surveyed is considered to be the best and most direct possible and is much better than was at first hoped for, the crossing of the Waterdown Creek being the only difficult part of the route.

As the line leaves the Dundas Station, it deflects slightly to the north, then runs through East Flamboro Township along the foot of the hills to Nelson Township, where it meets the original line between concessions 1 and 2 of that township. From this point on the line remains practically the same as originally surveyed, there being only a few minor changes where the line is offset slightly from its original position. About 50 per cent. of this line is along roadways, the total distance being 37¼ miles.

In this section the line crosses one steam railway and one high tension transmission line. There are also four somewhat difficult crossings of river valleys, but with the exception of these and the section in East Flamboro, the country is practically level and very favorable for a transmission line.

Sections C and D.

Owing to the new system of distribution it was not necessary to carry the high tension line to the City of Brantford. An entirely new survey was therefore made of Sections C and D, the new line being much more direct than the original one.

On leaving Dundas Station the new route parallels Section A to the line between concessions 1 and 2 of Ancaster Township, which it follows to Brantford Township. From here it follows the roads between concessions 1 and 2 of Brantford, Burford and East Oxford to the City of Woodstock, a total distance of 46¾ miles, about 80 per cent. of which is along roadways.

In this section there are crossings of two electric railways, one high tension power line and five steam railways.

Section E.

An entirely new route has been surveyed for this section as it was unnecessary to carry the high tension line to Ingersoll. On leaving the city limits of Woodstock, the line runs across country to the road between concession 1 and the broken front of West Oxford. The road is followed past Beachville, where the line turns north across country to the road between concessions 2 and 3 of North Oxford. The line continues to the end of this road and about two miles from the City of London, where it deflects across country to the transformer station, a total length of 25¾ miles. This line has the advantage over the old of being somewhat shorter and of following along roadways for over 80 per cent. of its entire length.

Section F.

Owing to the new conditions this line was also altered, only about six miles in East Flamboro being along the original survey.

The line as at present laid out, leaves the Dundas Station running west for a short distance along a road allowance, then north over the escarpment, continuing north along roadways to the road between East and West Flamboro. Here it encounters a telephone line which it is proposed to have removed. It continues along this roadway to a point beyond Freelton where it deflects easterly, running across country to the road along the west side of concession 7 of Puslinch Township. Near the north end of this road the line deflects slightly to the east, running across country to the city limits of Guelph. This line crosses two steam railways. The total length is 25¼ miles, 66 per cent. of which is along roadways. The country for the most part is very rolling, but with the exception of that part running over the escarpment near the Dundas Station the hills will entail no special construction.

Section G.

As it was unnecessary to touch Hespeler, Waterloo or New Hamburg, a route somewhat better than the original was surveyed, although the total length was only slightly reduced.

On leaving the city limits of Guelph, the line runs south-westerly across the Speed River to the Waterloo Road, which it follows to a point near the western limits of Guelph Township. From this point it deflects to the south, following the Hespeler Road, and this road produced to a point a short distance north of the Speed River. Here the line deflects to the west and follows the river valley to the Preston Station. From Preston it runs north-westerly, partly across country and partly along roadways in as direct a line as practicable to the Berlin Station.

Leaving the Berlin Station the line runs westerly across country to the Erb Road. Following this road and the road through Brocksden to a point near Stratford, the line deflects across country, entering the latter city from the south-east.

On this line are two electric and five steam railway crossings. There is also a river crossing requiring special construction. The line is 48¼ miles long and follows roadways for 55 per cent. of this distance. For the greater portion the country is rolling, but not sufficiently hilly to interfere with the building of the line or to make patrol especially difficult.

Securing Right of Way.

Early in the spring of 1908 preparations were begun for the securing of right of way. After taking all things into consideration it was decided to secure easement privileges for the land to be occupied by the transmission line, as it was considered that such a course would be the least objectionable from the owners' point of view.

The line built by the Grand Rapids Muskegon Power Co., being very similar to that contemplated by the Commission, was inspected during the last week in April, 1908, by Engineer Acres, accompanied by three land buyers. Notes were taken on the prices paid and the methods used for securing right of way and also on the general construction of the line.

One month later the actual work of securing right of way was begun, one land buyer accompanied by an engineer being sent to the Niagara section, the Toronto section and the London section, respectively, with the object of making a study of conditions and getting information that would lead to the establishing of suitable prices and incidentally to make what agreements they could, at the time, with the owners.

A scale of prices was finally arranged and adhered to throughout the whole of the work. Prices were set for tower privileges, a certain amount being offered for the privilege of erecting and maintaining each tower with its accompanying wires, etc., the price depending upon the value of the land and the location of the tower. A similar scale of prices was also made for patrol privileges, where such was necessary, and above this a sum was paid for the right to cut trees and to remove other obstructions.

The agreement for tower, patrol and other privileges were made for a term of thirty years with the right to renew at the expiration of this time, payment covering the thirty-year period for all the above items, to be made at the beginning of such period.

The task of securing right of way was an extremely difficult one. A commercial company could send agents quietly through the country securing rights to erect towers at the least price that could be arranged, whereas it was necessary that the Commission deal with everyone with absolute fairness and treat all alike.

A number of agreements were made with the understanding that a portion of the tower footing be on the roadways.

It was found that considerable opposition would be made to building any portion of the towers on road allowances and considerable mistrust was occasioned when the land buyers returned to readjust such agreements, the owners, in some cases, believing that the first agreement was made simply with the object of leading them on to sign others.

To add to these difficulties those opposing the work of the Commission sent agents throughout the country distributing literature and doing everything possible to raise distrust amongst the farmers and nullify the work of our land buyers.

Purchase of Power.

By-laws for the purpose of giving various Councils power to negotiate with your Commission for a supply of electrical energy were submitted throughout the Province. These by-laws were carried in every municipality by a large majority, as follows: Toronto, Hamilton, London, Brantford, Stratford, St. Thomas, Toronto Junction, Guelph, Galt, Woodstock, Ingersoll, St. Mary's, Waterloo, Preston, Hespeler, Weston and Paris. The result of this vote was conclusive and showed that the chief industrial centres of the Province had abundantly justified the Commission in the work so far undertaken.

As the result of this substantial endorsement the Commission then took up the question of the purchase of the power at the Generating Plant. Tenders were asked for from the Canadian Niagara Power Co., The Ontario Power Co., The Electrical Development Co., and the Erie & Ontario Development Co. These were considered with great care, and contract was finally awarded The Ontario Power Co.

After lengthy negotiations with this Company, the following agreement was entered into, dated 12th August, 1907:

This agreement, made this 12th day of August, 1907, between the Hydro-Electric Power Commission of Ontario, acting herein on its own behalf and with the approval of the Lieutenant-Governor in Council, (hereinafter called the "Commission"), party of the First Part, and The Ontario Power Company of Niagara Falls, incorporated by the Parliament of the Dominion of Canada, under and by virtue of Act 1887, 50-51 Victoria, Chapter 120; Act 1891, 54-55 Victoria, Chapter 126; Act 1893, 56 Victoria, Chapter 89; Act 1899, 62-63 Victoria, Chapter 105; Act 1900, 63-64 Victoria, Chapter 115, and Act 1902, 2 Edward VII., Chapter 86, (hereinafter called the "Company"), party of the Second Part.

Whereas, the Commission is duly incorporated under the provisions of an Act passed by the Legislature of the Province of Ontario, in the sixth year of His Majesty King Edward VII., and chaptered 15, and under the provisions of said Act is authorized to contract with any Company generating electrical power or energy for a supply of electrical power or energy to the Commission;

And whereas, the Company, under the provisions of the Statutes of Canada, above recited, and under the provisions of certain agreements dated April 11, 1900, August 15, 1901, June 28, 1902, and February 28, 1903, between the Company and the Commissioners of the Queen Victoria Niagara Falls Park, to which agreements reference is specifically made, has constructed a series of works in the vicinity of Niagara Falls, Ontario, in which the Company is now generating electrical power, and is prepared to sell and deliver the same in the quantities hereafter mentioned;

And whereas, the Commission invited tenders for electric power to be supplied at or near the Niagara Falls, and the Company made the lowest tender for the supply of power to the Commission for their purposes under the provisions of the said Act;

And whereas, certain municipalities have applied to the Commission for the maximum price of such power at Niagara Falls, and for estimates of the cost of transmission to the said municipalities;

And whereas, the estimates of the Commission wil be based in part upon this agreement, and the Commission will be required to devote time and skill and expend moneys in the preparation of such estimates, and such estimates are to be used by said municipalities for the purposes fully set forth in said Act;

And whereas, the Commission has declined other tenders and has decided to accept the tender of the said Company under the terms of this agreement:

Now therefore in consideration of the premises and of the mutual covenants and agreements herein contained and of other valuable considerations the parties hereto have mutually agreed, and do each agree with the other, as follows:—

1. The Company hereby agrees:—

(*a*) At the expiration of ninety days' notice in writing by the Commission to the Company to deliver eight thousand (8,000) horse power or more to the Commission and the Commission hereby agrees to purchase and pay for the same.

(*b*) At the expiration of three months' like notice to deliver from time to time to the Commission in blocks of not less than one thousand (1,000) horse power each, additional power until the total so delivered shall amount to thirty thousand (30,000) horse power, and the Commission hereby agrees to purchase and pay for the same.

(*c*) At the expiration of nine months' like notice to deliver from time to time in like blocks additional power until the total so delivered shall amount to one hundred thousand (100,000) horse power, and the Commission agrees to purchase and pay for the same.

2. The Commission agrees to take power exclusively from the Company up to the said 30,000 horse power, and also in addition thereto, one-half of the amount of power required by the Commission up to the said 100,000 horse power: thereafter the Commission may, at its option, take power from other sources.

3. The Company hereby agrees to deliver and the Commission to purchase and pay for the said several quantities of horse power on the terms and conditions of this agreement as hereinafter provided.

4. This agreement shall remain in force for ten years from the date of the expiration of the said ninety days' notice. The Commission may at its option continue this agreement for one, two or three further consecutive terms of ten years each by giving notice in writing of their intention to continue this agreement for the second term of ten years, at least three years before the expiration of the first term of ten years, and if the term be thus extended on giving notice of their intention to continue this agreement for the third term of ten years by giving a like notice at least three years before the expiration of the second term of ten years, and if the term be then extended on giving notice of their intention to continue this agreement for the fourth term of ten years by giving a like notice at least three years before the expiration of the third term of ten years. This agreement shall not in any event extend beyond 1st April, 1950, the date at which the first term of years of the above recited agreement of the Company with the Commissioners of the Queen Victoria Niagara Falls Park, dated the 11th April, 1900, will expire.

5. This agreement is entered into subject to the provisions of the Power Commission Act and neither the making of this agreement nor anything herein contained shall in any way limit or prejudice any right and power which the Commission may now have to expropriate the plant and apparatus of the said Company or any part thereof or the power generated by the said Power Company

or any other Power Company, but nothing in this agreement shall be taken to give or enlarge any such power.

6. The electrical power herein contracted for shall be three-phase, alternating, commercially continuous twenty-four hour power every day of the year, except as provided in paragraph hereof.

7. It is hereby agreed by and between the parties hereto that the maintenance by the Power Company of approximately the agreed frequency at the line switch or switches of the Company shall constitute the delivery of all power involved herein and the fulfilment of all operating obligations hereunder, and that when voltage and frequency are so maintained the amount of the power, its fluctuations, load factor, power factor, distribution as to phases and all other electrical characteristics and qualities are under the sole control of the Commission, its agents, customers' apparatus, appliances and circuits.

8. The Company shall at all times use first-class modern, standard, commercial hydro-electric power apparatus and plant and the power shall be delivered at approximately 60,000 volts and at approximately twenty-five cycles per second, and the company shall use first-class modern standard regulating apparatus and all due skill and diligence to maintain the power at such voltage and frequency.

9. The several blocks of power herein provided for shall be the amounts which the Company shall from time to time hold in reserve ready for the Commission, and the Commission shall not at any time take more than the amount so held in reserve for it.

The Commission shall so take power that the kilo-volt amperes so taken shall not at any time exceed by more than 5 per cent. the kilowatts held in reserve for it, and this provision shall apply proportionately to each circuit and phase.

10. The power herein provided for shall be measured by curve-drawing meters. These meters shall be subject to test as to accuracy by either party hereto.

The Commission shall pay for three-fourths of the power held in reserve for it, as herein provided, whether it takes the same or not.

When the greatest amount of power taken for any twenty (20) consecutive minutes during any month shall exceed three-fourths of the amount at that time held in reserve for the Commission, then it shall pay for this greater amount during that entire month.

11. The point of delivery shall be the property-line between the Company's Distributing Station and the right-of-way of the Michigan Central R.R. at Niagara Falls, Ontario, Canada, and at this point the Commission shall have the right to erect and maintain its initial line structure or structures.

12. In case the Company shall be prevented from delivering said power, or in case the Commission shall be prevented from taking said power, by strike, lock-out, riot, fire, invasion, explosion, act of God, or the King's enemies, or any other cause reasonably beyond their control, then the Company shall not be obligated to deliver such power during such period: and the Commission shall not be obligated to pay for such power during such period: but nothing herein contained shall be construed as permitting the Company to refuse to deliver power, or the Commission to refuse to take the same as soon as the cause of interruption is removed, and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes.

13. If interruptions occur in the service of the Company due to causes other than above, deductions shall be made as follows:—For interruptions less than one hour, double the amount payable for power for the time of such default, and for interruptions of one hour or more, the amount otherwise payable for the day.

14. The Commission and its customers shall select and use transformers and all apparatus most suitable to receive the electric power produced by the apparatus of the Company, and the Commission's transmitting, transforming, translating and all other apparatus and devices upon its circuits shall be of standard design and construction and shall be operated and maintained with special reference to securing the highest efficiency and most perfect operation, not only of its own, but also of the apparatus of the Company when receiving power from the Company; and the Commission shall instal upon and equip its circuits with such approved protective devices as are in commercial use and operate its circuits in such a manner as will to the then greatest extent protect the apparatus and circuits of the Company from damage and interruption by lightning, short circuiting or otherwise, so as to save harmless the Company from any damage that may arise in the use of the said power supplied by the Company to the said Commission.

After the happening of any of the events provided for in paragraphs 12 and 13 power shall be delivered first to the Commission before re-establishing power to any other customer or customers of the Power Company, provided that the Commission's lines are ready to receive such power.

15. It is recognized by both the parties hereto that the state of the art or production and transmission and application of electrical energy is subject to constant advance, and that it is impossible by contract to cover all requirements and conditions which time may develop, and the Company and the Commission with the approval of the Lieutenant-Governor-in-Council while adhering to the provisions of this agreement, will at any time upon the request of the other, take up and in good faith fairly consider, with the aid of their respective engineers, any features or changes of the system as a whole of the modifications of any of the provisions hereof, provided it shall appear to the party to whom such request is made that compliance therewith shall tend to make this agreement more effective and to make the venture of each party more successful and certain; provided, however, that any such action, or the failure on the part of either party to require of the other exact conformity to the provisions hereof, or any liberty or greater latitude beyond the provisions of this agreement permitted by either party to the other, in the course of the co-operation implied by the spirit of this agreement, shall in no manner act as or constitute a precedent or amend or change the obligations of the parities hereto.

16. The Commission hereby agrees to pay to the Company for such power delivered under the terms of this agreement, the sum of ten dollars and forty cents ($10.40) per horse power per annum when the amount reserved and held ready, upon the order of the Commission, for delivery under the terms hereof, is less than twenty-five thousand (25,000) horse power, and when the amount reserved and held ready for delivery upon like order exceeds twenty-five thousand (25,000) horse power, the Commission agrees to pay the sum of ten dollars ($10) per horse power per annum. The power shall be paid for monthly in gold coin of the present standard weight and fineness, in twelve amounts, in each year at the office of the Company in Niagara Falls, Ontario, and bills shall be rendered for such payments on the first, and be paid on or before the fifteenth of each month.

17. At any time that the quantity of power which is being taken under this agreement by the Commission shall amount to sixty per cent. or more of the total power which the Company is developing and a complaint is then made in writing by the Commission to the Company that the Company has so continuously neglected or failed to perform the terms of this agreement that the apparatus

of the Commission or its customers cannot by reason of such neglect or failure of the Company be operated to full efficiency and the Company shall not within a reasonable time remedy such neglect or failure then the matter of complaint may be referred to the arbitrators appointed as hereinafter stated, and if the said arbitrators shall determine that there is a just ground of complaint they may by their award direct that the Company shall remedy such neglect or failure within a time to be fixed by the award, and if such neglect or failure be not remedied as directed by the said award the arbitrators may order that upon such terms as they deem reasonable including the rights of the other parties interested the whole of the plant, apparatus and property of the Company shall be transferred to the Commission, whereupon on payment and satisfaction of the said terms the Commission may, with the approval of the Lieutenant-Governor-in-Council, take over the said plant, apparatus and property, and the same shall be transferred to the Commission.

18. It is hereby declared and agreed that in case the plant, apparatus, buildings or premises of the Company or any part thereof shall at any time during the continuance of this agreement be damaged or destroyed so as to prevent the Company from supplying the said power of the quantity and quality hereinbefore provided for to the Commission and the Company is unable to supply the said power within a reasonable time to be fixed if necessary by the said arbitrators, the Commission may, with the approval of the Lieutenant-Governor in Council, terminate this agreement, and any questions as to terms or conditions connected with such determination of the agreement shall be settled by the said arbitrators.

19. It is further agreed by and between the parties hereto that, in case any dispute shall arise relating to the question of the performance or fulfilment of any of the terms, provisos or conditions of this agreement, or as to the method or accuracy of the measurement of the power or as to any other question which may arise under this agreement, the same shall be finally determined by two independent persons, one to be chosen by each of the parties to such dispute, and such arbitrators shall, before proceeding with the reference, appoint a third arbitrator to act with them, and the decision of the said three arbitrators or a majority of them shall be conclusive on both parties, and in case either of the said parties shall neglect or fail to appoint an arbitrator within thirty days after the request in writing by the other party, then the arbitrator appointed by the other party may proceed alone, and his award shall be conclusive on all parties. The award shall be made within four months after the appointment of the first of such arbitrators and, in the event of the two arbitrators appointed, as aforesaid, being unable or unwilling to agree upon a third arbitrator for two weeks after their appointment or the appointment of the one of them who was last appointed, then such third arbitrator shall be chosen and appointed by the Chief Justice for the time being of the King's Bench Division of the High Court of Justice for the Province of Ontario, or in the event of the Chief Justice being sick, absent from the Province, or otherwise unable or refusing to act, then such third arbitrator shall be appointed by any Judge of the High Court of Justice other than a local judge. It is agreed that there may be an appeal by either party from any decision or award of such arbitrators to the High Court of Justice for Ontario in accordance with the provisions of the Arbitration Act in that behalf.

20. Notwithstanding that there may be differences between the parties which may embrace the question of the supply or sufficiency of the power or the

payment therefor or any other questions whatever that may arise under this agreement the Company shall continue to deliver the power and the Commission to pay therefor and both parties shall continue to carry out the contract notwithstanding such differences, and when the matters which may be in issue shall be finally determined by the reference as above provided, the parties shall deal with such matters according to the terms of the award that may be made on such reference. It being the distinct agreement between the parties that there shall not be during the period of the agreement any stoppage or cessation in the carrying on of the work, but that the same shall be continuous and any matters in difference shall not form a reason for interfering with the same but shall be accommodated in the manner herein provided.

21. The Company will not, directly or indirectly, deliver power in Ontario to any person or corporation that it is intended shall be supplied by the Commission under this agreement.

In case any difference arises as to such supply the same shall be settled by the said arbitrators.

This clause shall not, however, be held to cover or interfere with the supply of power agreed to be delivered by the said Company to any persons or corporations other than the Commission at the date on which the first block of power is ordered by the Commission from the Company under this agreement, but the said supply shall continue unaffected by this agreement.

22. The Company agrees that it will not exercise the right to cancel contained in the said agreement dated 11th April, 1900.

23. This agreement shall extend to and be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

24. This agreement shall have no force or effect until approved by the Lieutentant-Governor-in-Council.

In witness whereof the said Commission has affixed its corporate seal and has signed, sealed and executed the present agreement: and the Company acting by and through its President and secretary duly authorized for all purposes hereof has hereunto affixed its corporate seal under the hands of the President and Secretary.

A. Beck.

(Seal.) John S. Hendrie.

W. K. McNaught.

The Ontario Power Company of Niagara Falls.

J. J. Albright,
President.

Robert C. Board,

(Seal.) Secretary.

AMENDED AGREEMENT WITH THE ONTARIO POWER COMPANY.

All of the estimates made previous to the year 1908 had been made on the basis that the power would be transmitted to the various Transformer Stations at 60,000 volts, but after careful consideration and investigation as to the advisability of extending the area of distribution, and in view of the successful operation of a number of Transmission Plants at a potential of 80,000 volts your Commissioners deemed it necessary to go further into the question of increasing the potential of transmission. The information obtained, after careful research, proved so favorable for the higher potential that it was adopted. Negotiations were opened with the Ontario Power Company for the supply of Power at 110,000 or 112,000 volts instead of 60,000 volts. After several conferences the following agreement was entered into on March 8th, 1908:—

This Agreement made the nineteenth day of March, 1908, between The Hydro-Electric Power Commission of Ontario, acting herein on its own behalf and with the approval of the Lieutenant-Governor-in-Council (hereinafter called the "Commission") Party of the first Part, and The Ontario Power Company of Niagara Falls (hereinafter called the "Company") Party of the Second Part.

Whereas the Commission invited tenders for electric power to be supplied at or near the Niagara Falls, and the Company made the lowest tender for the supply of power to the Commission for their purposes under the provisions of the Power Commission Act.

And whereas certain municipalities have applied to the Commission for the maximum price of such power at Niagara Falls and for estimates of the cost of transmission to the said municipalities.

And whereas the etsimates of the Commission will be based in part upon this agreement, and the Commission will be required to devote time and skill and expend moneys in the preparation of such estimates, and such estimates are to be used by said municipalities for the purposes fully set forth in the said Act.

And whereas the Commission declined other tenders and accepted the tender of the Company and entered into the agreement hereto attached, but it was provided that certain additions might be made to the said agreement, and the parties have agreed to vary the said agreement in the manner hereinafter set forth.

Now therefore, this Indenture witnesseth that in consideration of the premises and of the mutual covenants and agreements herein contained, the parties hereto have mutually agreed and do each agree with the other as follows:—

1. That, except in so far as the said agreement is modified by this present agreement the same shall stand and be of full force, virtue and effect and binding between the parties.

2. The Company hereby agrees:—

(*a*) At the expiration of ninety days' notice in writing by the Commission to the Company to deliver eight thousand (8,000) horse power or more of electric power to the Commission:

(*b*) At the expiration of three months' like notice which may be given from time to time during the continuance of this agreement to deliver from time to time

to the Commission in blocks of not less than one thousand (1,000) horse power each, additional electric power until the total amount so delivered shall amount to thirty thousand (30,000) horse power.

(*c*) At the expiration of nine months' like notice, which may be given from time to time during the continuance of this agreement, to deliver from time to time to the Commission in like blocks, additional electric power until the total so delivered shall amount to one hundred thousand (100,000) horse power.

(*d*) The Commission shall not be bound to take or pay for any electric power until notice shall have been given as above provided.

(*e*) The Commission agrees to use all diligence by every lawful means in its power to procure such a demand from the municipalities, corporations, companies or persons for the power dealt with by this agreement so that at as early a date as possible the Commission will be in a position to give the notice above referred to to the Company for the supply of power in question, and if notwithstanding the exercise of all such reasonable diligence the Commission is not able within a period of eighteen months from the date of this agreement to give such notice, then the Company shall be at liberty to determine the agreement and it shall thereupon be no longer binding upon the parties hereto.

(*f*) The Commission agrees to take power exclusively from the Company up to the said 30,000 horse power, and also in addition thereto one-half of the amount of power required by the Commission up to the said 100,000 horse power; thereafter the Commission may, at its option, take power from other sources.

3. The Company hereby agrees to deliver, and the Commission agrees to purchase and pay for the said several quantities of electric power on the terms and conditions of this agreement.

4. The Commission hereby agrees to pay to the Company for such power so delivered under the terms of this agreement at the rate of $9.40 per horse power per annum for power at 12,000 volts, and at the rate of $10.40 per horse power per annum for power at 60,000 volts, and when the amount reserved and held ready for delivery upon the order of the Commission is in all, 25,000 horse power or more, payment shall be made at the rate of $9.00 per horse power per annum for power at 12,000 volts, and at the rate of $10.00 per horse power per annum for power at 60,000 volts. If power is taken at a higher voltage than 60,000 volts the price shall be determined as hereinafter provided. The power shall be paid for monthly in gold coin of the present standard of weight and fineness in twelve amounts in each year at the office of the Company at Niagara Falls, Ontario, and the bills shall be rendered by the Company on the first and paid by the Commission on or before the fifteenth of each month.

5. The Commission shall pay for three-fourths of the power ordered by the Commission and held in reserve for it as herein provided whether it takes the same or not.

6. When the greatest amount of power taken for any twenty consecutive minutes during any month shall exceed three-fourths of the amount during such twenty consecutive minutes ordered by the Commission and held in reserve, then the Commission shall pay for this greater amount during that entire month.

7. The point of delivery shall be the property line between the Company's distributing station and the right-of-way of the Michigan Central Railway at Niagara Falls, Ontario, Canada, and at or near this point on the Company's land the Commission shall have the right to erect and maintain during the continuance of this agreement its initial line structure or structures.

8. This agreement shall remain in force for ten years from the date of the expiration of the said ninety days' notice. The Commission may, at its option, continue this agreement for one, two or three further consecutive terms of ten years each by giving notice in writing of its intention to continue this agreement for the second term of ten years, at least three years before the expiration of the first term of ten years, and if pursuant to such notice this agreement is continued, by giving notice of its intention to continue this agreement for the third period of ten years at least three years before the expiration of the second term of ten years, and if pursuant to such last mentioned notice this agreement is continued, by giving notice of its intention to continue this agreement for the fourth term of ten years at least three years before the expiration of the third term of ten years. This agreement shall not in any event extend beyond the 1st of April, 1950, the date at which the first term of years of an agreement of the Company with the Commissioners of the Queen Victoria Niagara Falls Park dated eleventh April, 1900, will expire.

9. The electric power herein contracted for shall be three-phase alternating, commercially continuous twenty-four hour power every day of the year except as provided in paragraph 17 hereof.

10. It is agreed that the maintenance by the Company of approximately the agreed voltage at approximately the agreed frequency at the line switch or switches of the Company shall constitute the delivery of all power involved herein and the fulfilment of all operating obligations hereunder: and that when voltage and frequency are so maintained, the amount of the power, its fluctuations, load factor, power factor, distribution as to phases, and all other electric characteristics and qualities are under the sole control of the Commission, its agents, customers, apparatus, appliances and circuit.

11. That several blocks of power herein provided for shall be the amounts which the Company shall from time to time hold in reserve upon the order of the Commission and the Commission shall not at any time take more than the amount so ordered and held in reserve for it.

12. The Commission shall so take power that the kilo volt amperes so taken shall not at any time exceed by more than ten per cent. the kilowatts held in reserve for it and this provision shall apply proportionately to each circuit and phase.

13. The Company shall at all times use first-class, modern, standard, commercial hydro-electric power apparatus and plant and the power shall be delivered at approximately 12,000 volts or approximately 60,000 volts unless otherwise agreed as hereinafter provided, and at approximately 25 cycles per second, the Company shall use first-class, modern, standard regulating apparatus and all due skill and diligence to maintain the power at such voltage and frequency. The Commission may require part of the said power to be delivered at more than 60,000 volts and the Company shall be entitled to have the price for such higher voltage increased to such an extent as shall be relatively the equivalent, but without increased profit, to the price of power delivered at 60,000 volts, and in case the Company and the Commission cannot fix the higher voltage and the price to be paid therefor, the voltage may be fixed and the price to be paid determined under the Arbitration Act, Revised Statutes of Ontario, 1897, Chapter 62, in a summary manner and without appeal. Notwithstanding any award the Commission may decide to take power at 12,000 or 60,000 volts, but in that event the Commission shall pay all costs of said arbitration. The Commission shall with the ninety days' notice before mentioned specify in writing to the Company

that the power is to be delivered at not more than two of the said voltages or partly at one of the two and partly at the other voltage, and the Company shall deliver power or at the same time a certain part of the power at one voltage, and a certain part at the other so specified. The Commission may from time to time vary the quantities to be delivered at the specified voltages and thereupon the Company shall deliver the said power as varied, but the price for the power specified at the higher voltage shall not be reduced if the power is taken at the lower voltage. If part of the power is specified at a voltage higher than 60,000 volts the Commission shall give one year's notice instead of ninety days' notice for that part of such power.

14. The Commission and its customers shall select and use transformers and all apparatus most suitable to receive the electric power produced by the apparatus of the Company and the Commission's transmitting, transforming, translating and all other apparatus and devices upon its circuits when receiving power from the Company shall be of modern, standard design and construction and shall be operated and maintained with special reference to securing the highest efficiency and most perfect operation not only of its own but also of the apparatus of the Company when receiving power from the Company; and the Commission shall instal upon and equip all circuits with such approved protective devices as are in commercial use and operate its circuits in such a manner as will to the then greater extent protect the apparatus and circuits of the Company from damage and interruption by lightning, short-circuiting or otherwise, so as to save harmless the Company from any damage that may arise in the use of the said power supplied by the Company to the said Commission.

After the happening of any of the events provided for in paragraphs 17 and 22, power shall be delivered first to the Commission before re-establishing power to any other customer or customers of the Power Company, provided that the Commission's lines are ready to receive such power.

15. The power herein provided for shall be measured by curve-drawing meters. These meters shall be subject to test as to accuracy by either party hereto.

16. The Engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Company and take records at all reasonable hours on giving to the Company six hours' notice of the intention to make such inspection. The Company shall have a like right on giving a like notice to inspect the apparatus, plant and property of the Commission and of the municipalities, companies and persons who are using power supplied by it through or to the Commission.

17. In case the Comany shall at any time or times be prevented from delivering said power, or any part thereof, or in case the Commission shall at any time be prevented from taking said power, or any part thereof, by strike, lock-out, riot, fire, invasion, explosion, act of God or the King's enemies, or any other cause reasonably beyond their control, then the Company shall not be bound to deliver such power during such time and the Commission shall not be bound to pay for such power during such time, but as soon as the cause of such interruption is removed the Company shall without any delay deliver the said power as aforesaid and the Commission shall take the same and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

18. If and so often as any interruption shall occur in the service of the Company due to any cause or causes other than those provided for by the next preceding paragraph hereof, the Company shall pay to the Commission as liquidated and ascertained damages, and not by way of penalty, as follows:—For any interruptions less than one hour double the amount payable for power which should have been delivered during the time of such interruption, and for any interruption of one hour or more, the amount payable for the power which should have been delivered during the time of such interruption and twelve times the last mentioned amount in addition thereto and all moneys payable under this paragraph when the amount thereof is settled between the parties may be deducted from any moneys payable by the Commission to the Company under this agreement, but such right of deduction shall not in any case delay the monthly payments for power contracted for by this agreement.

19. It is recognized by both the parties hereto that the state of the art of production, transmission and application of electric energy is subject to constant advance, and that it is impossible by contract to cover all the requirements and conditions which time may develop; the Company and the Commission with the approval of the Lieutenant-Governor in Council while adhering to the provisions of this agreement will at any time upon the request of the other take up and in good faith fairly consider with the aid of the respective engineers any features or changes of the system as a whole or any modifications of any of the provisions hereof provided it shall appear to the party to whom such request is made that compliance therewith shall tend to make this agreement more effective and to make the venture of each party more successful and certain; provided, however, that any such action or the failure on the part of either party to require of the other exact conformity to the provisions of this agreement, or any liberty or greater latitude beyond the provisions of this agreement allowed by either party to the other in the course of the co-operation implied by the spirit of this agreement shall in no manner operate as or constitute a precedent or amend or change the obligation of the parties thereto.

20. This agreement is entered into subject to the provisions of the Power Commission Act and neither the making of this agreement nor anything herein contained shall in any way limit or prejudice any rights and powers which the Commission may now have to expropriate the plant and apparatus of the said Company or any plant thereof or the power generated by the said Power Company, or any other power company, but nothing in this agreement shall be taken to give or enlarge any such power.

21. It is agreed that in case any dispute shall arise relating to the question of the performance and fulfilment of any of the terms, provisos or conditions of this agreement, or as to the method or accuracy of the measurement of the power, or as to any question which may arise under this agreement, or as the rights of any of the parties after the termination of this agreement, under paragraph 22, the same shall be determined by two independent persons, one to be chosen by each of the parties to such dispute, and such persons before proceeding with the reference shall appoint a third arbitrator to act with them, and the decision of the said three arbitrators, or a majority of them, shall be conclusive on both parties except as hereinafter provided, and in case either of the said parties shall neglect or fail to appoint an arbitrator within thirty days after the request in writing by the other party then the arbitrator appointed by the other party may proceed alone and his award shall be conclusive on both parties except as herein-

after provided. The award shall be made within four months after the appointment of the first of such arbitrators, and in the event of the two arbitrators appointed as aforesaid being unable or unwilling to agree upon a third arbitrator for two weeks after their appointment, or the appointment of the one of them who was last appointed, then said third arbitrator shall be chosen and appointed by the Chief Justice for the time being of the King's Bench Division of the High Court of Justice for the Province of Ontario, or in the event of the said Chief Justice being ill, absent from the Province or otherwise unable or refusing to act, then such third arbitrator shall be appointed by any Judge of the High Court of Justice, or any Judge other than a local Judge. It is agreed that there may be an appeal by either party from any decision or award of such arbitrators to the High Court of Justice for Ontario in accordance with the provisions of the Arbitration Act in that behalf.

22. In case the plant, apparatus, buildings or premises of the Company, or any part thereof, shall at any time during the continuance of this agreement be damaged or destroyed so as to prevent the Company from supplying the said power of the quantity and quality hereinbefore provided for to the Commission the Company shall use its best endeavor to procure the said supply of power for the Commission otherwise or elsewhere and if the Company fails or neglects to procure such power for the Commission then the Commission may with the approval of the Lieutenant-Governor in Council, procure such power at reasonable rates and charge the same to the Company; and if the said power cannot be procured either with the approval of the Lieutenant-Governor in Council terminate this agreement.

23. If at any time that the quantity of power which is being taken under this agreement by the Commission shall amount to sixty per cent. or more of the total power which the Company is developing and a complaint is then made in writing by the Commission to the Company that the Company has so continuously neglected or failed to perform the terms of this agreement that the apparatus of the Commission or its customers cannot by reason of such neglect or failure of the Company be operated to full efficiency and the Company shall not within a reasonable time remedy such neglect or failure, then the matter of complaint may be referred to the Lieutenant-Governor in Council, and if he determine that there is a just ground of complaint he may direct that the Company shall remedy such neglect or failure within a time to be fixed by him, and if such neglect or failure be not remedied as directed by him the Lieutenant-Governor in Council may order that upon such terms as he deem reasonable including the rights of other parties interested, the whole of the plant, apparatus and property of the Company shall be transferred to the Commission, whereupon, on payment and satisfaction of the said terms the amount of which payment and satisfaction is to be settled by the arbitrators appointed as hereinbefore stated, the Commission may, with the approval of the Lieutenant-Governor in Council, take over the plant, apparatus and property and the same shall be transferred to the Commission.

24. The Company agrees with the Commission that the Company will not during the continuance of this agreement exercise the right to cancel the agreement dated 11th April, 1900, between the Company and the Commissioners of the Queen Victoria Niagara Falls Park.

25. In case any municipal corporation which shall contract with the Commission for a supply of power or any person, firm or corporation which shall con-

tract with any such municipal corporation, or with the Commission for a supply of power furnished to the Commission by the Company, shall suffer damages by the act or neglect of the Company, and such municipal corporation, person, firm, or corporation would, if the Company had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such municipal corporation, person, firm or corporation, and notwithstanding any acts, decision or rule of law to the contrary the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceeding or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

26. Subject to the provisions of paragraphs 22 and 23 of this agreement, notwithstanding there may be differences between the parties hereto as to the supply of sufficiency of the said power or the payment therefor or any other question whatever which may arise under this agreement, the Company shall continue to deliver the power and the Commission to pay therefor and both parties shall continue to carry out the contract notwithstanding such differences; and when the matters which may be so in issue shall be finally determined by the reference to arbitration in the manner provided by paragraph 21 hereof, the parties shall deal with such matters according to the terms of the award which may be made upon such reference. It being the distinct agreement between the parties that there shall not be during the period of this agreement any stoppage or cessation in the supply of the said power or on the payments therefor but that the same shall be continued as if there was no such difference.

27. The Company shall not directly or indirectly deliver power in Ontario to any person or corporation that it is intended shall be supplied by the Commission under this Agreement. In case any difference arises as to the said supply the same shall be settled with the said arbitrators. This paragraph shall not be held to cover or interfere with the supply of power agreed to be delivered by the said Company to any persons or corporations other than the Commission at the date on which the first block of power is ordered by the Commission from the Company under this agreement, but the said supply of power shall continue unaffected by this agreement. The Commission agrees it will not supply power at less than 60,000 volts at a price less than the price herein provided for for power at 60,000 volts with the cost of transforming added thereto to any person or corporation in the territory supplied from the transmission lines of the Company at the rate at which the first block of power is ordered by the Commission from the Company under this agreement. In case any difference arises as to the extent of such territory the same shall be settled by said arbitrators.

28. This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

29. Notwithstanding anything hereinbefore contained this agreement shall not come into operation as against the Commission or be binding upon the Commission until, in addition to any other orders in council, pursuant to said act, an order in council has been passed and approved by the Lieutenant-Governor in Council expressly declaring that this agreement shall from the date of such order-in-council

be binding upon the Commission, but this shall in no way interfere with the agreement contained in paragraph 2 (*e*), and the Commission undertakes to do all things lawful in its power that may be needed to bring this agreement into operation at as early a date as possible and to procure the assent and declaration of the said Lieutenant-Governor in Council above referred to and the said Company agrees to co-operate with the Commission by all lawful means in its power to carry out the objects of this agreement.

In witness whereof the said Commission has affixed its corporate seal and has signed, sealed and executed the present agreement; and the Company by and through its President and Secretary duly authorized for all purposes hereof has hereunto affixed its corporate seal under the hands of its President and Secretary.

A. Beck.
(Seal.) John S. Hendrie.
W. K. McNaught.

The Ontario Power Company of Niagara Falls.

J. J. Albright, *President.*
Robert C. Board, *Secretary.*

(Seal.)

Revised estimates for the Niagara Transmission were again immediately undertaken for the receipt of power of 12,000 volts, transmitting the same at 110,000 volts. The necessary information was obtained by the Engineers with reference to the apparatus for the operation at the higher potential. On May 5th, 1908, your Commissioners instructed the engineering staff to draw up all specifications and plans for the construction of the transmission line for the supply of power to the municipalities who had already contracted for the same.

The following specifications were drawn up, together with the necessary plans:

(*a*) Specifications for steel transmission line towers.

(*b*) Specifications for transmission line cable.

(*c*) Specifications for the erection of high tension transmission lines.

(*d*) Specifications for the complete work for the construction of high tension transmission lines.

(*e*) General conditions of contract accompanying above specifications.

The instruction to bidders and forms of tender are reproduced herewith.

Instructions to Bidders Attached to Specifications for Steel Transmission Towers.

1. Tenders will be received up to noon of Tuesday, June 2nd, 1908, by the Hydro-Electric Power Commission of Ontario for the supply of all materials, the manufacture of same ready for erection, and the delivery thereof as specified below at railroad stations convenient to the route of the transmission lines of about three thousand steel towers of sizes and types as specified.

2. Each tender shall be enclosed in a sealed envelope marked "TENDER FOR STEEL TRANSMISSION TOWERS," and addressed to CHAIRMAN OF HYDRO-ELECTRIC POWER COMMISSION, TORONTO, ONT.

3. The signatures of parties tendering shall be in their respective handwriting.

4. Tenders shall indicate the shortest period of time within which the tenderer will guarantee the delivery of the first hundred towers, after which he shall deliver at the minimum rate of two hundred and fifty per month. Towers shall be delivered in car load lots, F.O.B., sidings as directed (free of duty, if any).

5. Each tender shall be accompanied by a certified cheque for Twenty Thousand ($20,000) Dollars, which certified cheque shall be forfeited to the Hydro-Electric Power Commission as liquidated damages, in case the tenderer fails to execute the necessary contracts herein referred to, within two weeks after a notification to him from the Commission so to do. Cheques shall be returned to the respective bidders by the Commission upon the awarding and execution of the contracts as aforesaid, and at any rate within sixty days from the date of opening bids.

The successful tenderer will be required to execute a satisfactory bond in the sum of One Hundred Thousand ($100,000) Dollars for the proper performance of the work embraced in the contract.

The Commission reserves the right to reject any or all tenders. The lowest or any tender will not necessarily be accepted.

The tenders shall state prices per pound for each class of towers and additional material delivered knocked down at above-mentioned points (free of duty, if any).

In addition to the tenderer submitting a proposition exactly upon the design submitted by the Commission he shall submit a tender or tenders upon a design, or designs, offering the same service or what he may consider to be an improvement upon that herein described and indicated on plans, which tender or tenders must be accompanied by complete plans and specifications, and which must conform to all the conditions and requirements herein set out.

The contract shall contain clauses protecting the Commission from monetary loss due to patent litigation, negligence, defective material or workmanship or to the use of unproven apparatus, or to any cause whatsoever.

Dated May 9th, 1908.

Form of Tender Attached to Specifications for Steel Transmission Towers.

....., the undersigned, hereby offer to furnish to the Hydro-Electric Power Commission of Ontario all the necessary materials, labor, machinery and equipment, and to execute and complete in a satisfactory manner all the works required in connection with the manufacture, testing and delivery, F.O.B., cars at points as designated in specifications of the Galvanized Steel Towers and accessories for the Commission's Transmission Lines. 1st. In accordance with the designs of the Commission at a price of ..... per pound, for double circuit towers, and at a price of ..... per pound for single circuit towers. 2nd. In accordance with our design, herewith submitted and marked "Design Accompanying Tender," and with the Hydro-Electric Power Commission's specifications, at a price of ..... cents per pound.

....., further hereby agree to deliver at a price of ..... cents per pound the required parts for tower footings according to drawings and specifications.

....., also hereby agree to design, manufacture and deliver, F.O.B., cars at points on railroads convenient to the transmission line special tower structures as may be specified, at a price of ..... cents per pound.

....., hereby offer and agree to furnish and deliver 100 towers

and accessories within ..... weeks after the execution of the contract. ..... further offer and agree to continuously deliver towers at the rate of not less than two hundred and fifty per month until all are delivered.

....., further hold ..... ready promptly to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work at the above price, and on the terms herein stated, and .....further agree to furnish security for the due performance of the contract in the form of a bond of ..... Dollars ($), with sureties to the satisfaction of the Commission.

....., herewith enclose an accepted bank cheque payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario, for the sum of .....Dollars ($) as required in the "Instructions to Bidders," dated May 9th, 1908.

I ..... hereby certify that ..... have carefully investigated all conditions and the items of cost which may or can possibly enter into the cost of the work to .....

Signed .....

Post Office Address,

Dated at .....

..... 1908.

INSTRUCTIONS TO BIDDERS ATTACHED TO SPECIFICATIONS FOR TRANSMISSION LINE CABLE.

1. Tenders will be received up to noon of Tuesday, June 2nd, 1908, by the Hydro-Electric Power Commission of Ontario for the supply of all materials, manufacture and delivery thereof, F.O.B. at points designated on railways in different sections, free of all charges, including duty, if any, of approximately Twelve Hundred tons of Copper or Five Hundred and Fifty tons of Aluminum, also for additional cable or wire as specified and under the same conditions if ordered at the date of signing the Contract.

2. Each tender shall be enclosed in a sealed envelope marked "Tender for Transmission Line Cable" and addressed to the Chairman of the Hydro-Electric Power Commission of Ontario, Toronto.

3. The signatures of the parties tendering shall be in their respective handwriting.

4. The Tenderer shall make himself personally acquainted with the conditions affecting the work to be done.

5. The tender shall state the shortest period of time, after execution of contract in which the Tenderer will guarantee delivery of the first one hundred thousand (100,000) pounds of cable and shall indicate the number of pounds he will deliver per week thereafter until completion of order; at least 125 tons of copper or its equivalent in aluminum will be required per month.

6. The tender shall be submitted on the accompanying "Form of Tender" and tender offered on other form, or with additions, erasures or alterations, may be rejected as informal.

7. Each tender must be accompanied by a certified cheque for Twenty Thousand Dollars ($20,000), which certified cheque shall be forfeited to the Hydro-Electric Power Commission as liquidated damages in case the tenderer fails to

execute the necessary contracts herein referred to within two weeks after a notification to him from the Commission so to do. Cheques shall be returned to the respective unsuccessful bidders by the Commission upon the awarding and execution of the contracts as aforesaid, and at any rate within sixty days from the opening of the bids.

The successful tenderer will be required to execute a satisfactory Bond in the sum of One Hundred Thousand Dollars ($100,000) for the proper performance of the work embraced in the contract.

8. Tenders shall state prices for copper cable per pound delivered at the sections specified:

(a) One price for Section A.
(b) One price for Section B.
(c) One price for Section C.
(d) One price for Section D.
(e) One price for Section E.
(f) One price for Section F.
(g) One price for Section G.
(h) One price for Section H.

9. Prices shall be indicated in words, as well as figures.

10. The Commission reserves the right to reject any and all tenders. The lowest tender will not necessarily be considered the best tender.

11. It is further understood that the tenderer is free to suggest modifications of the details of the cable with corresponding price, although it is necessary for the proper comparison of tenders that the cable be tendered upon as herein specified, suggestions as above being submitted as alternative tenders.

DATED AT TORONTO, May 9th, 1908.

FORM OF TENDER ATTACHED TO SPECIFICATIONS FOR TRANSMISSION LINE CABLE.

....., the undersigned, hereby offer to furnish to the Hydro-Electric Power Commission of Ontario all the necessary materials, labor, machinery and equipment, and to execute and complete in a satisfactory manner all the works required in the manufacture, testing and delivery of "TRANSMISSION LINE CABLE," all according to specifications exhibited to ..... and will supply ..... pounds ( ) of Copper Cable with soft Copper core, at a price of ..... cents per pound avoirdupois, or will supply ..... pounds of Aluminum Cable at a price of ..... cents per pound avoirdupois, and will supply ..... pounds ( ) of hard drawn Copper Wire as specified at a price of ..... cents per pound.

....., hereby offer and agree to furnish and deliver one hundred thousand pounds of cable, all in accordance with the specifications and satisfactory to the Engineer within ..... weeks of the execution of the Contract, and deliver ..... pounds per week for succeeding weeks, until the amount contracted for is delivered.

....., further hold ..... ready promptly to enter into a contract in form satisfactory to the Chairman of the Hydro-Electric Power Commission of Ontario, for due and proper execution of the work at the rates and on the terms herein stated; and ..... further agree to furnish security for the due performance of the Contract by a Bond for ..... Dollars ( ) with satisfactory sureties as specified.

....., herewith enclose an accepted bank cheque, payable to the order of the Chairman of the Hydro-Electric Power Commission for the sum of ..... Dollars ( ) as required in the "Instructions to Bidders," dated May 9th, 1908.

....., hereby certify that ..... have carefully investigated all items of cost which do or can possibly enter into the cost of the work to .....

Signed .....

P. O. Address .....

Dated at .....

..... 1908.

INSTRUCTIONS TO BIDDERS ATTACHED TO SPECIFICATIONS FOR ERECTION OF HIGH TENSION TRANSMISSION LINES.

1. Tenders will be received up to noon of Tuesday, June the 2nd, 1908, by the Hydro-Electric Power Commission of Ontario for the supply of sundry material and of all labor necessary for and incidental to the Erection of a High Tension Electric Transmission Lines in Ontario, as shown on accompanying plans.

2. Each tender shall be enclosed in a sealed envelope marked "Tender for Erection of High Tension Electric Transmission Lines," and addressed to the Hon. Adam Beck, Chairman of The Hydro-Electric Power Commission of Ontario, Toronto, Ont.

3. The signatures of parties tendering shall be in their respective handwriting.

4. Tenderers shall make themselves personally acquainted with the site of Transmission System, with the nature of the materials to be handled and assembled, and with all conditions affecting the work to be done.

5. Tenders shall be submitted in the accompanying "Form of Tender"; any tenders offered on other forms or with additions, erasures or alterations, may be rejected as informal.

6. Each tender shall be accompanied by the "Instructions to Bidders," "Specifications" and "General Conditions of Contract," along with the plans and drawings as described hereunder, all of which shall form a part of the contract to be entered into by the successful tenderer.

7. The Tender shall state prices as follows:—

(a) A price per footing for the erection of standard steel footings (including excavation, adjusting, levelling and refilling), with the exception of timbering, placing of concrete and rock excavation, which will be considered as extras.

(b) A price per pound of steel for the erection of Double Circuit Standard Towers (including Corner, Anchor and Transposition Towers, which are of approximately the same weight and design), assembly, adjustment, alignment and bolting to footings prepared for them, as specified.

(c) A price per pound of steel for the erection of Single Circuit Standard Towers, under conditions as for Double Circuit Towers above.

(d) Two prices per mile of single conductor for the erection of Aluminum Cable (including the assembling of insulators and their subsequent erection on tower, also the splicing, stringing, adjusting of line conductors, all according to specifications hereto attached), as under:—

(1) A price per mile of Single Conductor erected on Double Circuit Towers.

(2) A price per mile of Single Conductor erected on Single Circuit Towers.

Per mile of Single Conductor will be measured on basis of tower spacing, not with reference to actual length of cable.

(e) Two prices per mile of Single Conductor for the erection of Copper Cable, conditions being similar to those above for Aluminum Cable namely:—

(1) A price per mile of Single Conductor erected on Double Circuit Towers.

(2) A price per mile of Single Conductor erected on Single Circuit Towers.

(f) Two prices per mile of Single Ground Cable, supplied, erected, adjusted and clamped in place on towers:—

(1) A price per mile of Single Conductor erected on Double Circuit Towers.

(2) A price per mile of Single Conductor erected on Single Circuit Towers.

Double Circuit Towers require three Ground Cables, and Single Circuit Towers one Ground Cable, as shown on drawings.

(g) Two prices per mile of line for the erection of Telephone Line, complete, with the exception of telephone instruments:—

(1) A price per mile of line for Two Circuits.

(2) A price per mile of line for Single Circuit.

Prices shall include complete erection and supply of all material not specified as supplied by the Commission.

8. Each tender shall be accompanied by a certified cheque for Four Thousand ($4,000) Dollars, which certified cheque shall be forfeited to the Hydro-Electric Power Commission as liquidated damages in case the tenderer fails to execute the necessary contracts herein referred to within two weeks after a notification to him from the Commission so to do. Cheques shall be returned to the respective bidders by the Commission upon the awarding and execution of the Contracts as aforesaid, and at any rate within sixty days from the date of the opening of bids.

The successful tenderer will be required to execute a satisfactory bond in the sum of Twenty Thousand ($20,000) Dollars for the proper performance of the work embraced in the Contract.

The Commission reserves the right to reject any or all tenders. The lowest or any tender will not necessarily be accepted.

The contract shall contain clauses protecting the Commission from monetary loss due to patent litigation, negligence, defective material or workmanship, or to the use of unproven apparatus, or to damage to property or persons, or to any cause whatsoever.

Dated May 9th, 1908.

FORM OF TENDER ATTACHED TO SPECIFICATIONS FOR ERECTION OF HIGH TENSION TRANSMISSION LINES.

....., the undersigned, hereby offer the Hydro-Electric Power Commission of Ontario to furnish all the material, excepting as listed in the specifications under the head "Material Furnished by Commission," all necessary labor, tools, machinery, and other plant, and to execute and complete in a satisfactory and workmanlike manner all the works required in connection with the erection of the Transmission Lines and Telephone Line, all according to the plans and specifications exhibited to..... at the following unit prices:—

For erecting the five sections of Transmission Line as specified under the heading "Scope of Work" in the specifications hereto attached:—

(1) For the erection and adjustment of Standard Steel Footings, complete, including excavation and refilling, per footing.....each.

(2) For the erection of Standard Double Circuit Steel Towers, complete, aligned and bolted to footings, per pound of steel.....cents per pound.

(3) For the erectioin of Standard Single Circuit Steel Towers, complete, aligned and bolted to footings, per pound of steel,.....cents per pound.

(4) For the erectioin of Aluminum Cable, including assembling and mounting of insulators on towers and clamping of same to cable, per mile of Single Conductor (a) for Double Circuit.....per mile (b) for Single Circuit.....per mile.

(5) For the erection of Copper Cable, including assembling and mounting insulators on towers and clamping same to cable, per mile of Single Conductor, (a) for Double Circuit.....per mile, (b) for Single Circuit .....per mile.

(6) For the erection of three galvanized steel ground cables and attaching to Double Circuit Towers, per mile of single cable.....per mile.

(7) For the erection of one Galvanized Steel Ground Cable and attaching to Single Circuit Towers, per mile of Single Cable.....per mile.

.....also agree to erect, on foundations previously prepared, additional Steel Towers designed on lines similar to those of standard type, up to ninety (90) feet in height, and not to exceed six thousand (6,000) pounds in weight, for.....cents per pound.

Also to erect the Telephone Line complete, as per specifications, for..... Dollars per mile of Double Circuit Line complete, and.....Dollars per mile of Single Circuit Line complete.

All on condition that the contract for the whole of the above work be allotted to.....

.....further hold..... ready to enter into a Contract in form satisfactory to the Commission for the due and proper execution of the work at the rates and on the terms herein stated, and .....further agree to furnish security for the due performance of the Contract in a bond for Twenty Thousand Dollars ($20,000), with satisfactory sureties, as specified.

.....herewith enclose an accepted bank cheque, payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario, for the sum of Four Thousand Dollars ($4,000), as required in the "Instructions to Bidders," dated May 9th, 1908.

.....hereby certify that ..... have carefully investigated all conditions and the items of cost which may or can possibly enter into the cost of the work to.....

Signed.....

Postoffice Address,

.....

Dated.....

INSTRUCTIONS TO "LUMP SUM" BIDDERS ATTACHED TO TENDER FOR COMPLETE WORK FOR HIGH TENSION TRANSMISSION LINES.

1. Tenders will be received up to noon of Tuesday, June 2nd, 1908, by the Hydro-Electric Power Commission of Ontario, for the supply of all material (excepting insulator parts), do all the work necessary or incidental to the complete installation and placing in satisfactory operating condition, The High Tension Transmisson Lines of the Commisson, as specified herein:

2. Each tender shall be enclosed in a sealed envelope marked "Tender for COMPLETE WORK FOR HIGH-TENSION TRANSMISSION LINES," and addressed to The Hon. Adam Beck, Chairman of the Hydro-Electric Power Commission of Ontario, Toronto, Can.

3. The signatures of parties tendering shall be in their respective handwriting.

4. Tenderers must make themselves personally acquainted with the site of Transmission Lines, with the nature of the materials to be handled, with the existing conditions in the localities existing and with all items which can enter into the cost of the work to the contractor.

5. Tenders must be accompanied with these "Instructions to Lump Sum Bidders," attached specifications and General Conditions of Contract which will form a part of the Contract to be entered into by the successful tenderer.

6. Each tender shall be accompanied by a certified cheque for Thirty-five Thousand ($35,000) Dollars, which certified cheque shall be forfeited to the Hydro-Electric Power Commission as liquidated damages, in case the tenderer fails to execute the necessary contracts herein referred to, within two weeks after a notification to him from the Commission so to do. Cheques shall be returned to the respective bidders by the Commission upon the awarding and execution of the contracts as aforesaid, and at any rate within sixty days from the date of the opening of bids.

The successful tenderer will be required to execute a satisfactory bond in the sum of One Hundred and Seventy-five Thousand ($175,000) Dollars for the proper performance of the work embraced in the contract.

The Commission reserves the right to reject any or all tenders. The lowest or any tender will not necessarily be accepted.

The contract shall contain clauses protecting the Commission from monetary loss due to patent litigation, negligence, defective material or workmanship or to the use of unproven apparatus, or to any cause whatsoever.

Dated May 9th, 1908.

FORM OF TENDER ATTACHED TO SPECIFICATIONS FOR COMPLETE WORK FOR HIGH TENSION TRANSMISSION LINES.

....., the undersigned, do hereby offer to the Hydro-Electric Power Commission of Ontario to furnish all the necessary materials, labor, implements, tools, machinery and other plants, and to execute and complete all the works mentioned and described in the accompanying specifications, in a satisfactory and workmanlike manner for the HIGH-TENSION TRANSMISSION LINES, in accordance with plans and specifications, and upon the terms and conditions set out in the form of Contract.

.....hereby, do offer and agree to execute the complete work for the sum of .....
.....Dollars ($), or providing the whole of the work is given to..... offer and agree to construct Transmission Lines complete, comprising Double Circuit Towers and two three-phase circuits of No. 00 B. and S. Gauge Copper Cable, including Double Circuit Telephone Lines as specified, for the sum of .....Dollars ($) per mile, or with No. 0000 B. and S. Gauge Aluminum Cable for the sum of.....
.....Dollars ($) per mile.

.....hereby offer and agree to construct Transmission Lines complete, comprising Double Circuit Towers and two three-phase circuits of No. 0 B. and S. Gauge Copper Cable, including Single Circuit Telephone Line as specified, for the sum of.....Dollars ($) per mile, or with No. 000 B. and S. Gauge Aluminum Cable for the sum of .....Dollars ($) per mile.

.....hereby offer and agree to construct Transmission Lines complete, comprising Double Circuit Towers, and one three-phase circuit of No. 0 B. and S. Gauge Copper Cable, including Single Circuit Telephone Line as specified, for the sum of.....Dollars ($) per mile, or with No. 000 B. and S. Gauge Aluminum Cable for the sum of .....Dollars ($) per mile.

.....hereby offer and agree to construct Transmission Lines complete, comprising Single Circuit Towers and one three-phase circuit of No. 0 B. and S. Copper Cable, including Single Circuit Telephone as specified, for the sum of.....Dollars ($) per mile, or with No. 000 B. and S. Gauge Aluminum Cable for the sum of .....Dollars ($) per mile.

.....hold.....ready promptly to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work for the sum and on terms herein stated, and .....further agree to furnish security for the due performance of the Contract in the form of a bond for One Hundred and Seventy-five Thousand Dollars ($175,000) with sureties to the satisfaction of the Commission.

.....herewith enclose an accepted bank cheque payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario for the sum of Thirty-five Thousand Dollars ($35,000) as required in the "Instructions to Lump Sum Bidders," dated May 9th, 1908.

.....hereby offer and agree, should the Contract be let to ....., to complete the work specified and to hand it over to the Commission ready for operation within fifteen months after the date of notification from the Engineer to begin work.

.....hereby certify .....have personally visited and examined the site of Transmission Lines, or have caused it to be visited and examined by a competent person or persons, and have investigated all items of cost which may or can enter into the cost of the work to..... or the amount of Tender submitted.

Signed.....

Post Office Address .....

.....

.....

Dated at.....

.....1908.

The work will include all special structures for river crossings, High Potential Line crossings, Terminals, Anchor Towers, Transposition Towers, etc., necessary for the complete and satisfactory installation of the various lines.

For the above work tenders were called on June 2nd, as per the advertisement inserted below, after which the time was extended to July 15th.

TENDERS.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

Tenders will be received until Tuesday, 2nd June, 1908, inclusive, for the construction of (a) Steel Transmission Towers; (b) Transmission Line Cable; (c) Erection complete of Transmission System; according to plans and specifications to be seen at the Commission's Office, Continental Building, Toronto. Tenders will not be considered unless on forms supplied. An accepted cheque on a chartered bank for five per cent. of the commission's estimate of the cost of the work in each tender, must accompany the tender. The cheque will be forfeited if the tenderer declines the contract. The lowest or any tender not necessarily accepted.

Tenders must be sealed and addressed: Hon. Adam Beck, Chairman Hydro-Electric Power Commission, Toronto, Ont.

TENDERS.

Extension of Time.

TRANSMISSION LINES—TORONTO-NIAGARA FALLS; ST. THOMAS-NIAGARA FALLS.

Tenders will be received until Wednesday, July 15, 1908, inclusive, for the construction of (*a*) Steel Transmission Towers; (*b*) Transmission Line Cable; (*c*) Erection, complete, of Transmission System, according to plans and specifications to be seen at the Commission's office, Continental Life Building, Toronto. Tenders will not be considered unless on form supplied. An accepted cheque on a chartered Bank for 5 per cent. of the Commission's estimate of the cost of the work in each tender must accompany the tender. The cheque will be forfeited if the tenderer declines the contract. The lowest or any tender not necessarily accepted.

Tenders must be sealed and addressed: Hon. Adam Beck, Chairman, Hydro-Electric Power Commission, Toronto, Ont.

On July 15th, twenty-eight tenders were received by your Commissioners, fifteen for the supply of towers, five for the supply of cables, five for the erection of transmission lines and three for the complete work, as follows:

For steel transmission towers, the prices being in cents per pound:—

Canadian Bridge Co., Walkerville.

D.C.	4.30	Spl.	4.90
S.C.	4.30	O.D.	4.20
Ftgs.	3.80		

Ontario Iron and Steel Co., Toronto.

D.C.	3.65	Ftgs.	3.47
S.C.	3.75	Spl.	4.25

Ontario Wind Engine & Pump Co.,

D.C.	4.10	Ftgs.	4.00
S.C.	4.20	Spl.	4.25

John Inglis Co., Toronto.

D.C.	5.125	Ftgs.	5.125
S.C.	5.125	Spl.	5.125

International Marine Signal Co., Ottawa.

D.C.	8.98	Spl.	9.00
S.C.	9.1	O.D.	8.25
Ftgs.	8.98		

Russel Wheel & Foundry Co., Detroit, Mich.

D.C.	3.94	Ftgs.	3.494
S.C.	4.18	Spl.	4.4

Goold, Shapley & Muir, Brantford.

D.C.	3.83	Ftgs.	3.80
S.C.	3.85	Spl.	4.20

Structural Steel Co., Montreal.

D.C.	4.325	Ftgs.	4.095
S.C.	4.325	Spl.	4.325

Collingwood Shipbuilding Co., Collingwood.

D.C.	4.2	Ftgs.	4.2
S.C.	4.2	Spl.	4.2

Parkin Elevator Co.,'Hespeler.

D.C.	8.875	Ftgs.	8.00
S.C.	8.75	Spl.	9.00

Canada Foundry Co., Toronto.

D.C.	5.00	Ftgs.	5.00
S.C.	5.00	Spl.	5.00

Milliken Bros. Receivers of New York.

Alternative design.

D.C.	3.94	3.84	Spl.	4.2	4.1
S.C.	3.94	3.84	O.D.	3.99	3.89
Ftgs.	3.94	3.84			

British Insulated & Helsby Cables, Limited, Montreal.

D.C.	4.7	Ftgs.	4.7
S.C.	4.7	Spl.	4.7

Riter-Conley Manufacturing Co., Pittsburgh, Pa.

D.C.	4.30	Spl.	5.50
S.C.	4.30	O.D.	4.10
Ftgs.	4.00		

Jenckes Machine Co., Sherbrooke, Que.

D.C.	3.825	Ftgs.	3.825
S.C.	3.825	Spl.	5.00

The following prices were received for the supply of transmission line cable, the price being in cents per pound:—

Dominion Wire Manufacturing Co., Montreal.

Copper Cable	16c.	Hard Copper Wire	15c.

Aluminum Corporation, Limited, Toronto.

Aluminum Cable	22.9c.

Eugene F. Phillips Electrical Works, Limited, Montreal.

Copper Cable	14.85	Hard Copper Wire	14.45c

Wire and Cable Co., Montreal.

Copper Cable	15.65c.	Hard Copper Wire	15.65c

British Insulated and Helsby Cables, Limited, Montreal.

Copper Cable	18.23c	Aluminum Cable	28.32
Hard Copper Wire	16.56c		

The following prices were received for the erection of transmission line. Numbers are according to clauses in erection specifications:—

Merrill-Ruckgaber-Fraser Co., New York, N.Y.

1	15.00	B	65 00
2	1c.	6	106.00
33	1.10c.	7	106.00
4 A	$65.00	Spec.	1½c.
B	65.00	Telephone A	400 00
5 A	65.00	" B	390.00

Muralt & Co., New York, N.Y.

1	8.00	5 A	34.00
2	1.2c.	B	36.00
3	1.3c.	Spec.	1.2c.
4 A	28.00	Telephone A	305.00
B	30.00	" B	270.00
6	22.00 \	Erection only. This is irregular.	
7	22.00 /	" " " "	

McLennan & Keyes, Toronto.

1	3.91	5 B	27.00
2	34c.	6	51.00
3	33c.	7	55.00
4 A	$24.00	Spec.	1c.
4 B	25.00	Telephone A	$246.00
5 A	24.00	" B	232.00

Campbell, Sinclair & Green, Owen Sound.

1	$10.00	Spec.	1½
2	1c.	Telephone A	$260.00
3	½	" B	250 00

The following lump sum tenders were received:

F. H. McGuigan Construction Co., Toronto.

A Aluminum Cable—Milliken Towers or Commission's Substitute.
B Copper Cable— " " " "
C Aluminum Cable—Canadian Bridge Co's Towers.
D Copper Cable— " " "

"A"	$1,225,000	$5,100	$4,690	$3,940	$3,430 per mile.
"B"	1,255,000	5,420	4,920	3,940	3,480 "
"C"	1,270,000	5,240	4,830	4,080	3,570 "
"D"	1,300,000	5,560	5,060	4,080	3,620 "

Gas and Electric Power Co., Toronto.

$1,555,150	$6,652	$6,234	$5,123	$4,718 per mile.

After lengthy and careful consideration of these tenders it was decided that tender "C" of the F. H. McGuigan Construction Co. be approved on account of the low price and the immense advantage of the fact of the Commission dealing with one company in the building of the line. Accordingly contract was entered into dated 6th day Nov., 1908, as follows. Agreements of Nov. 25th, 1908, 4th Feb., 1909, are also attached to this contract.

THIS AGREEMENT, dated the 6th day of November, 1908,

BETWEEN THE F. H. McGUIGAN CONSTRUCTION COMPANY, (herein called the Contractor), the first party, and THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, (herein called the Commission), the second party.

WITNESSETH, that the parties covenant, promise and agree each with the other as follows:—

1. The General Conditions of Contract, marked A (11 pages), Instructions to lump sum bidders attached to tender for complete work of high tension transmission lines, Specifications for complete work for high tension transmission lines, Form of Tender attached to Specifications for complete work for high tension transmission lines, Specifications for Steel Transmission Towers, Specifications for Transmission Line Cable, Specifications for erection of high tension transmission lines, Data for No. 10 telephone wire and aluminum cable, marked B (31 pages), blue print plan of surveyed transmission lines, blue print transmission lines and stations (No. A 76), blue print all angle iron footing (No. 3 T 26), blue print erection of footing (No. 3 T 29), marked C, blue print single circuit tower, Canadian Bridge Company, marked D, double circuit tower, marked E, blue print required spacing for hanging insulator for aluminum cable (No. 1 T 32), marked F, and all plans, specifications and drawings therein provided for shall form part of this contract.

2. The Contractor agrees:—

(*a*) To construct and erect the transmission lines complete, as set forth in said specifications, plans and drawings, and to supply all materials therefor, except high tension insulators.

(*b*) To use the best material and perform the said works in a thorough workmanlike manner in strict conformity with the said plans, specifications and drawings.

(*c*) Subject to receiving notice in accordance with paragraph 3 (*c*) hereof, to fully complete and deliver to the Commission on or before the 19th December, 1909, that part of the said works from Niagara Falls

to Dundas, and 120 miles of the said works beyond Dundas, so that the Commission may take power pursuant to its contract with the Ontario Power Company at said date, and deliver the said power at any two of the Cities of Toronto, London and Guelph, and to fully complete and deliver the balance of the said works on or before the 1st July, 1910.

(*d*) To execute a bond satisfactory to the Commission in the sum of One Hundred and Seventy-five Thousand Dollars ($175,000), for the proper performance of the said works, and in respect of the liability under paragraph 4 (*a*) hereof to furnish a bond satisfactory to the Commission in the sum of $100,000.

(*e*) To obtain the aluminum cable required under this contract from the Northern Aluminum Company of America, to be made at Shawinigan Falls, and the steel towers for aluminum cable from the Canadian Bridge Company at Walkerville or and the Ontario Iron and Steel Company, of Welland, Ontario. Said steel towers are to be manufactured in Ontario.

(*f*) On or before the 4th February, 1909, upon request in writing, to supply to the Commission, within 30 days, from 50 to 125 tons of aluminum cable, as Commission may request, for low tension transmission lines, at the price per pound set forth in the Contractor's letter of 4th August, 1908, to the Commission.

(*g*) To permit the Commission on or before the said 4th February, 1909, to withdraw from said tender that part of the transmission line between Berlin and London, via Stratford (about 58 miles). If the said part is withdrawn the Commission may thereafter reduce or increase the mileage of the works five per cent., but if the said part is not withdrawn, the Commission may reduce or increase the mileage of the works ten per cent., and upon any reduction or increase, proper allowances shall be made to the parties respectively, at the rates per mile set forth in the Form of Tender.

(*h*) On or before said 4th February, 1909, upon request in writing, to execute a further contract with the Commission to construct not more than 293 miles additional at the same rates, upon the same terms and conditions as are set forth in this contract, except as to time of completion which shall be a reasonable time to be fixed by the Engineer of the Commission.

(*i*) The Contractor agrees to alter the design of single circuit and double circuit towers shown in blue prints marked "D" and "E," submitted with his tender of July 15th, 1908, to meet the conditions as to height shown upon the blue print marked "F," and to increase the bolting system of the anchorage. All dimensions of parts and of members to remain as far as practicable as shown on said blue prints. The posts and braces at the ends of cross arms of double circuit tower are to be dispensed with and the ground wire attachement provided for on the ends of said arms. The Contractor shall forthwith erect one single circuit tower and one double circuit tower in accordance with paragraph 9 on page 6 of the Specifications for steel transmission towers hereto attached amended after line II only to read as follows:—

"(1) Two circuit standard towers:

"Test No. 1. At each conductor support, a load of 800 pounds applied in a vertical downward direction; and at each ground cable support, a vertical downward load of 600 pounds.

"Test No. 2. At each of any two conductor supports, a horizontal load of 2,000 pounds parallel to the line and applied simultaneously.

"Test No. 3. At lower cross arm connection, a load of 10,000 pounds in a horizontal direction parallel to line.

"(2) Single circuit standard towers:

"Test No. 1. At each conductor support, a load of 800 pounds applied in a vertical downward direction, and at each ground cable support, a vertical downward load of 600 pounds.

"Test No. 2. At each of any two conductor supports, a horizontal load of 2,000 pounds parallel to the line and appplied simultaneously.

"Test No. 3. At the middle cross arm, a load of 7,500 pounds parallel to the line.

"A factor of safety for material of at least 2½ will be required for above loads."

Should the said towers fail to meet the said tests, the design shall be changed to remedy defects, and the said towers shall be tested, in accordance with the specifications as in this paragraph above set forth, until they are satisfactory to the said engineers. After all necessary changes and new improvements have been made, the Contractor shall make new plans embodying all the changes and improvements made, and these plans, after being approved by the Commission's engineers, shall be accepted as the plans for the said towers under the contract.

(*j*) If required in writing by the Commission before the 4th day of February, 1909, and after the Commission shall have requested the Contractor to supply the material provided for in paragrph 2 (*f*) hereof, or to execute the further contract provided for by paragraph 2 (*h*) hereof, to assign to the Commission the options and agreements now held by the Company from the manufacturers named in paragraph 2 (*e*) hereof, for the supply of materials required for the purposes set out in said paragraphs to the intent that if the Contractor fails to supply the material and execute the agreement set forth in said paragraphs, the Commission shall have the right to use all options and agreements for their own purposes, and shall not be liable to account in any way to the Contractor for any benefit or advantage that may be derived therefrom. Copies of said options and agreements are to be sealed in an envelope and deposited with The Toronto General Trusts Corporation.

3. The Commission agrees:—

(*a*) To pay to the Contractor the sum of One Million Two Hundred and Seventy Thousand Dollars (1,270,000), for the said works subject to reduction or increase as aforesaid, upon the terms and conditions set forth in the said General Conditions and Specifications.

(*b*) To supply high tension insulators for the said transmission lines free of cost and charge to the Contractor as aforesaid.

(*c*) That the Engineer shall, pursuant to paragraph 14 (*a*) of the General Conditions, give his order to the Contractor as soon as possible, and not later than the 15th November, 1908, to provide material for the said works. Prior to 15th February, 1909, the Commission shall give the Contractor access to at least fifty miles of the right of way, continuous or otherwise, in stretches of not less than five miles, as the said right of way is acquired by the Commission, and as such access is given the Engineer shall give his order to the Contractor to proceed with the works thereon. On the said 15th February, 1909, the Engineer shall, pursuant to said paragraph 14 (*a*), give his order to proceed with the whole works.

4. It is further agreed:—

(*a*) If within twelve months from the date of the final certificate of the Engineer, it appears that unsound or defective material supplied by the Contractor has been used, or the said works have not been executed in a substantial, workmanlike and proper manner, the Contractor shall be liable to the Commission for all damages arising therefrom. No certificate, payment, or other act, matter or thing done or omitted under this contract shall bar or prejudice the rights of the Commission.

(*b*) If any difference shall arise during the progress or after the completion of the works, as to any matter or thing arising under or out of this contract, such difference shall be referred to two arbitrators, one to be chosen by each of the parties hereto, and they shall choose a third arbitrator, but if they cannot agree such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible, the arbitrators shall decide such difference in a summary manner. Either party may appeal from any award of the arbitrators, as provided by the Arbitration Act, R. S. O. Chap. 62, but no such appeal shall be carried beyond the decision of the Court of Appeal of Ontario. The arbitrators shall not consider any matter or difference which is expressly or by implication required or permitted to be decided by the Engineer, or as to the grounds upon which, or mode in which, any opinion may have been formed or discretion exercised by the Engineer.

(*c*) For all purposes of this contract, notices shall be served upon the Engineer, or his appointee, in writing for the Commission, and upon the Manager, or his appointee, in writing, for the Contractor.

(*d*) Time shall be of the essence of this agreement.

(*e*) This agreement shall extend to, be binding upon and enure to the benefit of the executors, administrators and assigns of the first party, and of the successors and assigns of the second party.

IN WITNESS WHEREOF the said Commission has affixed its corporate seal and has signed, sealed and executed the present agreement: and F. H. McGuigan, Esquire, has signed, sealed and executed the present agreement on behalf of the said Company.

Witness,

THIS AGREEMENT, dated the 25th day of November, 1908,

BETWEEN THE F. H. MCGUIGAN CONSTRUCTION COMPANY, the Contractor, the first party, and THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, the Commission, the second party.

WITNESSETH: 1. In consideration of the sum of One Dollar and the Agreement of 6th November, 1908, between the parties hereto, the first party agrees:—

(*a*) If inaccurate, to correct the designs "D" and "E" filed with the Commission on 12th November, 1908, pursuant to paragraph 2 (*i*) of said agreement, so that the said designs shall comply strictly with the said paragraph.

(*b*) To permit the Commission, within ten days from this date, to submit a design or designs of single circuit and double circuit towers as different from the said designs "D" and "E" as the Commission may desire, and upon receipt of said designs to forthwith erect towers according to each of the said designs so submitted, and to test the said towers in any way the Commission may desire. The Commission may waive the right to require the Contractor to erect a single circuit and double circuit tower under said paragraph 2 (*i*).

(*c*) To permit the Commission, within three days of the completion of the said tests, to substitute any modified design, or any other design or designs, provided that the increased cost incidental to the use of a tower erected according to such substituted design shall be borne by the Commission. The Contractor shall be required only to bear a cost equivalent to the cost of erection and test of one single circuit tower and one double circuit tower according to the designs "D" and "E." The Commission is to bear all cost in addition thereto. When said tests have been completed, the following words of said paragraph 2 (*i*) shall apply: "After all necessary changes and new improvements have been made, the Contractor shall make new plans embodying all the changes and improvements made, and these plans, after being approved by the Commission's Engineers, shall be accepted as the plans for the said towers under the contract."

2. Except as herein expressly provided, nothing in this agreement shall vary or effect the said agreement of 6th November, 1908.

IN WITNESS WHEREOF the said Commission has affixed its corporate seal and has signed, sealed and executed the present agreement; and F. H. McGuigan, Esquire, has signed, sealed and executed the present agreement on behalf of the said Company.

THE F. H. MCGUIGAN CONSTRUCTION COMPANY,
Per F. H. McGuigan.

WITNESS: S.B. VENNING.
As to Signature of Contractor,
R. B. HALL.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.
A. BECK,
Chairman.
W. K. MCNAUGHT.

W. M. WHITEHEAD.

THIS AGREEMENT dated the Fourth day of February, 1909.

BETWEEN THE F. H. MCGUIGAN CONSTRUCTION COMPANY (herein called the "Contractor"), the first party, and THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO (herein called the "Commission"), the second party.

WHEREAS by an agreement dated 6th November, 1908, between the parties hereto, the Contractor agreed to construct transmission lines for the Commission, and it was provided that the Contractor would supply further material and construct further transmission lines upon the terms set forth in paragraphs 2 (*f*) and (*h*) of said agreement.

WITNESSETH that in consideration of the premises and of the sum of One Dollar now paid by the Commission to the Contractor and by him acknowledged, the Contractor agrees with the Commission:

(*a*) To extend the time within which the Commission may make a request in writing pursuant to the said paragraphs respectively from 4th February, 1909, to 4th May, 1909.

(*b*) That the said extension of time shall, as far as possible, apply to 2 (*j*) of the said agreement.

(*c*) That this agreement shall in no way vary or affect the said agreement except as above specifically provided, and shall not affect the rights, if any, of the Commission as against any sureties for the Contractor.

SIGNED, SEALED AND
DELIVERED
In the presence of
D. Z. THOMSON.

F. H. MCGUIGAN CONSTRUCTION COMPANY,
Per F. H. McGuigan.

Specifications and plans were prepared for the electrical equipment of transformer and interswitching stations during 1908, and on September 28th, 1908, tenders were called for the supply and installation of same, and advertisements were placed in all the leading electrical journals and papers as below:

TENDERS FOR TRANSFORMER STATION EQUIPMENT.

Tenders will be received until 6 p.m., Monday, 28th September, 1908 (*a*), for the supply and erection of 63,500 Volt Single Phase or 110,000 Volt Three Phaes Transformers for operation on the Commission's 110,000 Volt Transmission System; (*b*) for the manufacture, supply and erection complete of the Switching and Indicating Apparatus for the 110,000 Volt Transforming Stations. Apparatus is required for the following high tension transformer stations: Niagara Falls Step-up Transformer Station, Toronto, London, Dundas, Guelph, Preston, Berlin, Stratford, St. Mary's, Woodstock, Brantford, and St. Thomas Step-down Transformer Stations; all according to plans and specifications to be obtained at the Commission's Office, Continental Life Building, Toronto. Accepted cheques on chartered banks for amounts specified in "Instructions to Bidders" must accompany each tender for the work. These cheques will be forfeited providing the tenderer declines to enter into a contract after due notice by the Commission.

The lowest or any tender not necessarily accepted.

Tenders must be sealed and addressed:

HON. ADAM BECK,
Chairman, Hydro-Electric Power Commission, of Ontario.
Toronto, Ontario.

Newspapers inserting this advertisement without authority from the Commission will not be paid for it.

The instructions to bidders and forms of tender for this work follow.

Several tenders were received for this work, and are under consideration.

INSTRUCTIONS TO BIDDERS ATTACHED TO SPECIFICATIONS FOR SWITCHING, CONTROL AND PROTECTIVE APPARATUS, ETC., FOR INTERSWITCHING STEP-UP AND STEP-DOWN TRANSFORMER STATIONS.

1. Tenders will be received up to 6 p.m., September 28th, 1908, by the Hydro-Electric Power Commission of Ontario, for the furnishing, delivery, installing, testing and placing in satisfactory operating condition, the switching, control, protective apparatus and service equipment complete for the interswitching, and transformer stations, according to the attached specifications.

2. Each tender shall be enclosed in a sealed envelope marked "Tender for 110,000 Volt Switching, Control and Protective Apparatus, etc., for Interswitching and Transformer Stations," and addressed to the Hon. Adam Beck, Chairman of the Hydro-Electric Power Commission of Ontario, Toronto, Canada.

3. The signatures of the parties tendering shall be in their respective handwriting.

4. Tenderers shall make themselves personally acquainted with the site of transformer stations, with the nature of the materials to be handled and assembled, and with all the conditions affecting the work to be done.

5. Tenders shall be submitted on the accompanying "Form of Tender," with the tenderer's attached schedule of tests, data, etc. Any tenders offered on other forms, or with erasures or alterations, may be rejected as informal. The tenderer may also attach to the form of tender additional alternative tenders for the works specified.

6. Each tender shall be accompanied by the "Instructions to Bidders," specifications Nos. N-80824, T-80824, L-80824, P-80826, W-80826, D-80827, St.-80827, I-80902, E-80905, O-80908, and G-80816, with the plans and drawings accompanying specifications, and tenderer's attached schedule of tests, data, etc., all of which shall form a part of the contract to be entered into by the successful tenderer.

7. The tenderer shall state prices as follows:

(*a*) Prices for each interswitching and transformer station complete as specified.

(*b*) Prices on spare apparatus delivered and erected ready for operation.

8. Each tender shall be accompanied by a certified cheque for Twenty thousand dollars ($20,000.00), which certified cheque shall be forfeited to the Hydro-Electric Power Commission as liquidated damages, in case the tenderer fails to execute the necessary contracts herein referred to within two weeks after notification to him from the Commission to do so. Cheques shall be returned to the respective bidders by the Commission, upon the awarding and execution of the contracts as aforesaid, and at any rate within sixty days from the date of the opening of bids.

The successful tenderer will be required to execute a satisfactory bond in the sum of One hundred and twenty-five thousand dollars ($125,000.00) for the proper performance of the work embraced in the contract.

9. The Commission reserves the right to reject any or all tenders. The lowest or any tender will not necessarily be accepted.

10. The contract shall contain clauses protecting the Commission from monetary loss due to patent litigation, negligence, defective material or workmanship, or to the use of improper apparatus, or to damage to property or persons, or to any cause whatsoever to which the contractor is liable.

Dated August 29th, 1908.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

FORM OF TENDER ATTACHED TO SPECIFICATIONS FOR SWITCHING, CONTROL AND PROTECTIVE APPARATUS, ETC., FOR INTERSWITCHING AND TRANSFORMER STATIONS.

....., the undersigned, hereby offer to furnish to the Hydro-Electric Power Commission of Ontario, all the necessary materials, labor, machinery, equipment, etc., and to execute and complete in a satisfactory manner all the works required in connection with the manufacture, testing, delivery, erection, final test, and placing in satisfactory operating condition in the transformer stations of the Hydro-Electric Power Commission the switching control and protective apparatus, instruments and service equipment complete, all according to specifications and plans submitted to ....., and ..... will supply the apparatus with all accessories complete, installed in the Commission's stations, as below:—

NIAGARA FALLS Step-up Transformer Station, according to Specifications No. N-80814 complete, for the sum of ..... ($) dollars.

TORONTO Step-down Transformer Station, according to Specifications No. T-80824 complete, for the sum of ..... ($) dollars.

LONDON Interswitching and Transformer Station, according to Specifications No. L-80824 complete, for the sum of ..... ($) dollars.

DUNDAS Interswitching and Transformer Station, according to Specifications No. D-80827 complete, for the sum of .....($) dollars.

GUELPH Interswitching and Transformer Station, according to Specifications for Guelph No. W 80826 complete, (a) 13,200 volt system, for the sum of ..... ($) dollars; (*b*) 2,300 volt system, for the sum of ..... ($) dollars.

PRESTON Interswitching and Transformer Station, according to Specifications No. P-80826 complete, for the sum of ..... ($) dollars.

BERLIN Interswitching and Transformer Station, according to Specifications for Berlin No. W-80826 complete, for the sum of ..... ($) dollars.

STRATFORD Interswitching and Transformer Station, according to Specifications for Stratford No. W-80826 complete: (*a*) 13,200 volt system for the sum of ..... ($ dollars; (*b*) 2,300 volt system, for the sum of..... ($) dollars.

ST. MARY'S Interswitching and Transformer Station, according to Specifications for St. Mary's No. W-80826 complete: (*a*) 13,200 volt system, for the sum of ..... ($) dollars; (*b*) 2,300 volt system, for the sum of ..... ($) dollars.

BRANTFORD Interswitching and Transformer Station, according to Specifications for Brantford No. W-80826 complete, for the sum of ..... ($) dollars.

WOODSTOCK Interswitching and Transformer Station, according to Specifications for Woodstock No. W-80826 complete, for the sum of ..... ($) dollars.

ST. THOMAS Transformer Station, according to Specifications No. St.-80827 complete: (*a*) 13,200 volt system, for the sum of ..... ($) dollars; (*b*) 2,300 volt system, for the sum of ..... ($) dollars.

In case changes are made in any of the above stations necessitating more or less apparatus than called for in the attached specifications, the above lump sum tenders shall be increased or decreased by amounts based upon the following prices:

....., hereby submit the following unit prices for apparatus with accessories furnished and erected complete, according to attached specifications except as noted.

Niagara Falls Transformer Station.

One 12,000 volt, 600 ampere automatic, electrically operated, remote control, oil switch, with control and indicating devices and wiring, but without series transformers; Type ..... for the sum of ..... ( ) dollars.

One 12,000 volt, 600 ampere, disconnecting switch, mounted, complete with insulators; Type ..... for the sum of ..... ($) dollars.

One potential transformer on 12,000 volt circuit, for operating a wattmeter or a voltmeter; Type .....for the sum of ..... ($) dollars.

One series transformer for 600 ampere, 12,000 volt circuit, for operating an oil switch, a wattmeter or an ammeter; Type ..... for the sum of ..... ($) dollars.

One polyphase recording wattmeter, scale 0-12,000 kilowatt, without transformers; Type ..... for the sum of ..... ($) dollars.

One 110,000 volt, 100 ampere automatic, electrically operated, remote control, oil switch, with control and indicating devices; Type .....for the sum of .....($) dollars.

One 110,000 volt, 150 ampere disconnecting switch; Type ..... for the sum of .....($) dollars.

One set of three, 110,000 volt, series, inverse time limit overload relays for operating an oil switch with wiring; Type ..... for the sum of ..... ($) dollars.

One set of three 110,000 volt, series transformers with an inverse time limit overload relay for operating an oil switch with wiring; Type.....for the sum of ..... ($) dollars.

One 110,000 volt oil insulated choke coil; Type ..... for the sum of ..... ($) dollars.

One set of 110,000 volt electrolytic lightning arresters; Type ..... for the sum of .....($) dollars.

Six 110,000 volt station busbar insulators with conductor clamps and supports. Type ..... for the sum of ..... ($) dollars each.

One 110,000 volt line outlet; Type ..... for the sum of ($) dollars.

Toronto Transformer Station.

One 110,000 volt, 100 ampere automatic, electrically operated, remote control, oil switch with control and indicating devices; Type ..... for the sum of .....($) dollars.

One 110,000 volt, 150 ampere disconnecting switch, mounted complete with insulators; Type ..... for the sum of ..... ($) dollars.

One set of three 110,000 volt, series inverse time limit overload relays for operating an oil switch, with wiring; Type ..... for the sum of .....($) dollars.

One set of three 110,000 volt series transformers with an inverse time limit overload relay for operating an oil switch, with wiring; Type ..... for the sum of .....($) dollars.

One 110,000 volt oil insulated choke coil; Type ..... for the sum of .....($) dollars.

One set of 110,000 volt electrolytic lightning arresters; Type..... for the sum of .....($) dollars.

Six 110,000 volt station busbar insulators with conductor clamps and supports; Type ..... for the sum of ..... ($) dollars each.

One 110,000 volt line entrance; Type ..... for the sum of .....($) dollars.

One 13,200 volt, 300 ampere automatic electrically operated, remote control, oil switch with control and indicating devices and wiring, but without series transformers; Type ..... for the sum of ..... ($) dollars.

One 13,200 volt, 300 ampere, disconnecting switch, mounted complete with insulators; Type ..... for the sum of ..... ($) dollars.

One potential transformer on 13,200 volt circuit for operating a wattmeter or a volt meter; Type ..... for the sum of .....
($) dollars.

One series transformer for 300 ampere, 13,200 volt circuit for operating an oil switch, a wattmeter, or an ammeter; Type .....
for the sum of .....($) dollars.

One 13,200 volt air choke coil complete with insulators and base; Type ....
.....for the sum of .....
($) dollars.

One set 13,200 volt electrolytic lightning arresters; Type.....
for the sum of .....($) dollars.

One set of multiple gap arresters and accessories for 13,200 volt line erected complete; Type .....for the sum of .....
($) dollars.

One polyphase recording wattmeter, scale 0-5,000 kilowatt without transformers; Type ..... for the sum of .....
($) dollars.

London Transformer Station.

One 110,000 volt, 100 ampere automatic, electrically operated, remote control, oil switch with control and indicating devices; Type.....
for the sum of.....($) dollars.

One 110,000 volt, 150 ampere disconnecting switch, mounted complete with insulators; Type .....for the sum of .....
($) dollars.

One set of three 110,000 volt, series inverse time limit overload relays for operating an oil switch with wiring; Type .....for the sum of
.....($) dollars.

One set of three 110,000 volt series transformers with an inverse time limit overload relay for operating an oil switch, with wiring; Type.....
for the sum of.....($) dollars.

One 110,000 volt oil insulated choke coil; Type.....for the sum of .....($) dollars.

One set of 110,000 volt electrolytic lightning arresters; Type.....
.....for the sum of.....($) dollars.

Six 110,000 volt station busbar insulators with conductor clamps and supports; Type .....for the sum of.....
($) dollars.

One 110,000 volt line entrance; Type.....for the sum of
.....($) dollars.

One 13,200 volt, 300 ampere automatic electrically operated, remote control, oil switch with control and indicating devices and wiring, but without series transformers; Type .....for the sum of .....
($) dollars.

One 13,200 volt, 300 ampere, disconnecting switch, mounted complete with insulators; Type ..... for the sum of .....
($) dollars.

One potential transformer on 13,200 volt circuit for operating a wattmeter or a voltmeter; Type ..... for the sum of .....
($) dollars.

One series transformer for 300 ampere, 13,200 volt circuit for operating an oil switch, a wattmeter, or an ammeter; Type .....for the sum of ..... ($) dollars.

One 13,200 volt air choke coil, complete with insulators and base; Type .....for the sum of ..... ($) dollars.

One set of 13,200 volt electrolytic lightning arresters; Type..... ..... for the sum of ..... ($) dollars.

One set of multiple gap arresters and accessories for 13,200 volt line erected complete; Type ..... for the sum of ..... ($) dollars.

One polyphase recording wattmeter, scale 0-5,000 kilowatt without transformers; Type .....for the sum of ..... ($) dollars.

Dundas Station.

One 110,000 volt, 100 ampere, automatic electrically operated, remote control oil switch with control and indicating devices; Type ..... for the sum of .....($) dollars.

One 110,000 volt, 150 ampere ,disconnecting switch, mounted, complete with insulators; Type ..... for the sum of ..... ($) dollars.

One set of three, 110,000 volt series with an inverse time limit overload relays for operating an oil switch, with wiring; Type.....for the sum of .....($) dollars.

One set of three, 110,000 volt series transformers with an inverse time limit overload relays for operating oil switch, with wiring; Type..... for the sum of.....($) dollars.

One 110,000 volt oil insulated choke coil; Type .....for the sum of.....($) dollars.

One set of 110,000 volt electrolytic lightning arresters; Type ..... for the sum of .....($) dollars.

Six 110,000 volt station, busbar, insulators with conductor clamps and supports; Type .....for the sum of..... ($) dollars.

One 110,000 volt line entrance; Type .....for the sum of.....($) dollars.

One 13,200 volt, 100 ampere automatic electrically operated, remote control, oil switch with control and indicating devices and wiring, but without series transformers; Type .....for the sum of..... ($) dollars.

One 13,200 volt, 150 ampere, disconnecting switch, mounted complete with insulators; Type .....for the sum of..... ($) dollars.

One potential transformer on 13,200 volt circuit for operating a wattmeter or a voltmeter; Type .....for the sum of..... ($) dollars.

One series transformer for 100 ampere, 13,200 volt circuit for operating an oil switch, a wattmeter or an ammeter; Type .....for the sum of.....($) dollars.

One 13,200 volt air choke coil complete with insulators and base; Type .....for the sum of.....($) dollars.

One set of 13,200 volt electrolytic lightning arresters; Type..... for the sum of.....($) dollars.

One set of multiple gap arresters and accessories for 13,200 volt line, erected complete; Type .....for the sum of..... ($) dollars.

One Polyphase recording wattmeter, Scale 0-2000 kilowatts without transformers; Type ..... for the sum of.....($) dollars.

Preston Station.

One 110,000 volt, 100 ampere automatic hand operated, oil break switch, with indicators; Type .....for the sum of.....($) dollars.

One 110,000 volt, 150 ampere disconnecting switch, mounted complete with insulators; Type .....for the sum of..... ($) dollars.

One set of three, 110,000 volt series inverse time limit overload relays for operating an oil switch, with wiring; Type .....for the sum of..... ($) dollars.

One set of three 110,000 volt series transformers with an inverse time limit overload relay for operating an oil switch, with wiring; Type..... for the sum of..... ($) dollars.

One 110,000 volt oil insulated choke coil; Type ..... for the sum of..... ($) dollars.

One set of 110,000 volt electrolytic lightning arresters; Type ..... for the sum of..... ($) dollars.

Six 100,000 volt station busbar insulators with conductor clamps and supports; Type.....for the sum of .....($) dollars.

One 110,000 volt line entrance; Type ..... for the sum of.....($) dollars.

One 6,600 volt, 300 ampere automatic hand operated oil switch, without series transformers; Type ..... for the sum of..... ($) dollars.

One 6,600 volt, 300 ampere disconnecting switch, mounted complete with insulators; Type ..... for the sum of..... ($) dollars.

One potential transformer on 6,600 volt circuit for operating a wattmeter or a voltmeter; Type .....for the sum of ..... ($) dollars.

One series transformer for 300 ampere, 6,600 volt circuit for operating an oil switch, a wattmeter, or an ammeter; Type.....for the sum of ..... ($) dollars.

One 6,600 volt air choke coil complete, with insulators and base; Type..... for the sum of..... ($) dollars.

One set of 6,600 volt electrolytic lightning arresters; Type ..... for the sum of..... ($) dollars.

One set of multiple gap arresters and accessories for 6,600 volt lines erected complete; Type.....for the sum of..... ($) dollars.

One polyphase recording wattmeter, Scale 0-3000 kilowatts without transformers; Type ..... for the sum of..... ($) dollars.

Woodstock, Berlin, Brantford, Guelph, Stratford, St. Mary's and St. Thomas Stations.

One 110,000 volt, 100 ampere automatic hand operated, oil break switch with indicators: Type..... for the sum of..... ($) dollars.

One 110,000 volt, 150 ampere disconnecting switch, mounted complete with insulators; Type .....for the sum of..... ($) dollars.

One set of three, 110,000 volt series inverse time limit overload relays for operating an oil switch, with wiring; Type ..... for the sum of.....($) dollars.

One set of three 110,000 volt series transformers with an inverse time limit overload relay for operating an oil switch, with wiring; Type ..... for the sum of..... ($) dollars.

One 110,000 volt oil insulated choke coil; Type ..... for the sum of..... ($) dollars.

One set of 110,000 volt electrolytic lightning arresters; Type ..... for the sum of..... ($) dollars.

Six 110,000 volt station busbar insulators with conductor clamps and supports; Type ..... for the sum of..... ($) dollars.

One 110,000 volt line entrance erected complete; Type ..... for the sum of..... ($) dollars.

One 13,200 volt 100 ampere automatic, hand operated oil switch, without series transformers; Type ..... for the sum of ..... ($) dollars.

One 13,200 volt 100 ampere disconnecting switch, mounted complete with insulators; Type ..... for the sum of..... ($) dollars.

One potential transformer on 13,200 volt circuit for operating a wattmeter or a voltmeter; Type ..... for the sum of..... ($) dollars.

One series transformer for 100 ampere 13,200 volt circuit for operating an oil switch, a wattmeter or an ammeter; Type .....for the sum of..... ($) dollars.

One 13,200 volt air choke coil, complete, with insulators and base; Type..... for the sum of..... ($) dollars.

One set of 13,200 volt electrolytic lightning arresters; Type ..... for the sum of..... ($) dollars.

One set of multiple gap arresters and accessories for 13,200 volt line erected complete; Type ..... for the sum of..... ($) dollars.

Guelph Station.—2,300 Volt Apparatus.

One 2,300 volt, 750 ampere 3 P.S.T. automatic, hand operated oil switch without series transformers; Type ..... for the sum of ..... ($) dollars.

One 2,300 volt, 750 ampere, 1 P.S.T. disconnecting switch, mounted complete, with insulators; Type ..... for the sum of..... ($) dollars.

One potential transformer for operating a wattmeter or voltmeter; Type ..... for the sum of..... ($) dollars.

One series transformer for 750 ampere circuit for operating an oil switch, a wattmeter, or an ammeter; Type ..... for the sum of.....

Stratford, St. Mary's and St. Thomas Stations.—2,300 Volt Apparatus.

One 2,300 volt, 500 ampere, 3 P.S.T. automatic hand operated oil switch without transformers; Type ..... for the sum of..... ($) dollars.

One 2,300 volt, 500 ampere 1 P.S.T. disconnecting switch, mounted complete with insulators; Type ..... for the sum of..... ($) dollars.

One potential transformer for operating a wattmeter or a voltmeter; Type ..... for the sum of.....($) dollars. ($) dollars.

One series transformer for 500 ampere circuit for operating an oil switch, or a wattmeter or an ammeter; Type ..... for the sum of ..... ($) dollars.

GENERAL.

Instruments without Transformers.

One polyphase recording wattmeter—
(a) Scale 0-2000 kilowatts; Type .....for the sum of ..... ($) dollars.
(b) Scale 0-3000 kilowatts; Type ..... for the sum of..... ($) dollars.
One recording power factor meter; Type ..... for the sum of ..... ($) dollars.
One recording voltmeter—
(a) Scale 10,000-15,000; Type ..... for the sum of ..... ($) dollars.
(b) Scale 1,500-3,000; Type ..... for the sum of ..... ($) dollars.
One indicating A.C. ammeter—
(a) Scale 0-100; Type ..... for the sum of ..... ($) dollars.
(b) Scale 0-750; Type ..... for the sum of ..... ($) dollars.
One indicating A.C. voltmeter, Scale 0-15,000; Type ..... for the sum of .....($) dollars.
One indicating polyphase wattmeter—
(a) Scale 0-2,000 kilowatts; Type ..... for the sum of ..... ($) dollars.
(b) Scale 0-3,000 kilowatts; Type ..... for the sum of ..... ($) dollars.

Service Equipment.

One 25 kilowatt single phase transformer, 12,000 volts to 125 volts; Type ..... for the sum of..... ($) dollars.
One 15 kilowatt single phase transformer 13,200 volts to 125 volts; Type ..... for the sum of..... ($) dollars.
One 5 kilowatt single phase transformer, 13,200 volts to 125 volts; Type ..... for the sum of..... ($) dollars.
One 75 kilowatt three phase transformer, 12,000 volts to 125 volts; Type ..... for the sum of..... ($) dollars.
One 45 kilowatt three phase transformer, 13,200 volts to 125 volts; Type ..... for the sum of..... ($) dollars.
One 15 kilowatt three phase transformer, 13,200 volts to 125 volts; Type ..... for the sum of..... ($) dollars.
One 5 kilowatt motor generator set, 125 volts A.C. to 125 volts D.C.; Type ..... for the sum of..... ($) dollars.

....., hereby submit attached guarantee tests and data for the respective apparatus tendered upon.

.....further hold..... ready promptly to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work for the sums and on terms herein stated, and ..... further agree to furnish security for the due performance

of the contract in the form of a Bond satisfactory to the Commission, for One Hundred and Twenty-five Thousand Dollars ($125,000.00) with a Guarantee Company or other sureties as the Commission may determine.

....., herewith enclose an accepted bank cheque payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario for the sum of Twenty Thousand Dollars ($20,000.00) as required in the "Instructions to Bidders" attached, dated August 29th, 1908.

.....hereby offer and agree, should the Contract be let to.....to complete the whole of the work specified and to hand it over to the Commission ready for operation within.....months after the date of notification from the Commission to begin work.

....., hereby certify that.....have carefully investigated all conditions and items of cost which may or can possibly enter into the cost of the work to be performed, or the amount of Tender submitted.

Signed .....

Post Office Address .....

Dated at.....1908.

INSTRUCTIONS TO BIDDERS, ATTACHED TO SPECIFICATIONS FOR 63,500 SINGLE PHASE AND 110,000 VOLT THREE-PHASE TRANSFORMERS.

1. Tenders will be received up to 6 p.m., September 28th, 1908, by the Hydro-Electric Power Commission of Ontario, for the manufacture, delivery and complete installation of the following transformers, according to accompanying specifications for single phase and three-phase Transformers.

Erected in Stations at	Number receiv'd.	Capacity K. V. A.	Phase.	Primary voltage.	Secondary voltage
Niagara Falls	9	3,000	1	12,000	63,500
Toronto	6	1,250	1	63,500	13,200–6,600
London	3	1,250	1	63 500	"
Berlin	3	500	1	63,500	"
or Berlin	1	1,500	3	110,000	"
Brantford	3	500	1	63,500	"
or Brantford	1	1,500	3	110,000	"
Dundas	3	500	1	63,500	"
or Dundas	1	1,500	3	110,000	"
Woodstock	3	400	1	63,500	"
or Woodstock	1	1,200	3	110,000	"
Preston	3	750	1	63,500	"
or Preston	1	2,250	3	110,000	"
Guelph	3	750	1	63,500	"
or Guelph	1	2,250	3	110,000	"
Stratford	3	500	1	63,500	"
or Stratford	1	1,500	3	110,000	"
St. Thomas	3	500	1	63,500	"
or St. Thomas	1	1,500	3	110,000	"
St. Mary's	3	400	1	63,500	"
or St. Mary's	1	1,200	3	110,000	"

The above transformers shall be designed for operation at either 13,200 or 6,600 volts by placing low tension windings in series or parallel.

2. Each tender shall be enclosed in a sealed envelope, marked "Tender for 110,000 Volt Transformers," and addressed to the Hon. Adam Beck, Chairman of the Hydro-Electric Power Commission of Ontario, Toronto, Canada.

3. The signatures of the parties tendering shall be in their respective handwriting.

4. Tenderers shall make themselves personally acquainted with the site of transformer stations, with the nature of the materials to be handled and assembled, and with all conditions affecting the work to be done.

5. Tenders shall be submitted in the accompanying "Form of Tender," any Tenders offered on other forms or with additions, erasures or alterations, may be rejected as informal.

6. Each Tender shall be accompanied by the "Instructions to Bidders," "Specifications" and "General Conditions of Contract," along with the plans and drawings as described hereunder, all of which shall form a part of the contract to be entered into by the successful Tenderer.

7. The Tender shall state prices as follows:—

(a) Prices for Transformers for each station, erected on foundations as specified.

(b) Alternative prices on Three-Phase Transformers complete.

(c) A price on spare Transformers, delivered, erected complete in the station specified.

Prices shall include complete erection and supply of all material not specified as supplied by the Commission.

8. Each Tender shall be accompanied by a certified cheque for Fifteen Thousand Dollars ($15,000.00), which certified cheque shall be forfeited to the Hydro-Electric Power Commission as liquidated damages in case the tenderer fails to execute the necessary contracts herein referred to within two weeks after notification to him from the Commission to do so. Cheques shall be returned to the respective bidders by the Commission upon the awarding and execution of the contracts as aforesaid, at any rate within sixty days from the date of the opening of bids.

The successful tenderer will be required to execute a satisfactory bond in the sum of Sixty Thousand Dollars ($60,000.00) for the proper performance of the work embraced in the contract.

The Commission reserves the right to reject any or all tenders. The lowest or any tender will not necessarily be accepted.

The contract shall contain clauses protecting the Commission from monetary loss due to patent litigation, negligence, defective material or workmanship, or to the use of unproven apparatus, or to damage to property or persons, or to any cause whatsoever.

Dated August 29th, 1908.

Form of Tender Attached to Specifications for 63,000 Volt Single Phase and 110,000 Volt Three-Phase Transformers.

....., the undersigned, hereby offer to furnish to the Hydro-Electric Power Commission of Ontario, all the necessary materials, labor, machinery, equipment, etc., and to execute and complete in a satisfactory manner, all the works required in connection with the manufacture, testing, delivery, erection, final test, and placing in satisfactory operation in the transformer stations of the Hydro-Electric Power Commission, all according to the plans and specifi-

cations exhibited to..... and will supply them with oil and all accessories complete in the Commission's stations as below for the following prices:— .....

At Niagara Falls, Ont.

Nine (9) single phase, three thousand (3,000) kilo-volt amperes 12,000-63,500 transformers for the sum of ..... ($) dollars.

At Toronto, Ont.

Six (6) single phase, twelve hundred and fifty (1,250) kilo-volt amperes 63,500 13,200-6,600 volt transformers for the sum of .....($) dollars.

At London, Ont.

Three (3) single phase twelve hundred and fifty (1,250) kilo-volt amperes 63,500, 13,200-6,600 volt transformers, for the sum of.....($) dollars.

At Berlin, Ont.

Three (3) single phase five hundred (500) kilo-volt amperes 63,500 13,200-6,600 volt transformers, for the sum of.....($) dollars, or as an alternative, one three-phase fifteen hundred (1,500) kilo-volt amperes 110,000 13,200-6,600 volt transformers, for the sum of.....($) dollars.

At Brantford, Ont.

Three (3) single phase five hundred (500) kilo-volt ampere 63,500 13,200-6,600 volt transformers, for the sum of .....($) dollars, or as an alternative, one (1) three-phase fifteen hundred (1,500) kilo-volt ampere 110,000 13,200-6,600 volt transformer, for the sum of.....($) dollars.

At Dundas, Ont.

Three (3) single phase five hundred (500) kilo-volt ampere 63,500 13,200-6,600 volt transformers, for the sum of.....($) dollars, or as an alternative, one (1) three-phase fifteen hundred (1,500) kilo-volt ampere 110,000 13,200-6,600 volt transformer, for the sum of.....($) dollars.

At Woodstock, Ont.

Three (3) single phase four hundred (400) kilo-volt 63,500 13,200-6,600 volt transformers, for the sum of.....($) dollars, or as an alternative, one (1) three-phase twelve hundred (1,200) kilo-volt ampere 110,000 13,200-6,600 volt transformer, for the sum of.....($) dollars.

At Preston, Ont.

Three (3) single phase seven hundred and fifty (750) kilo-volt ampere 63,500 13,200-6,600 volt transformers, for the sum of.....($) dollars, or as an alternative, one (1) three-phase twenty-two hundred and fifty (2,250) kilo-volt ampere 110,000 13,200-6,600 volt transformer, for the sum of..... ($) dollars.

At Guelph, Ont.

Three (3) single phase seven hundred and fifty (750) kilo-volt ampere 63,500 13,200-6,600 volt transformers, for the sum of.....($) dollars, or as an alternative, one (1) three-phase twenty-two hundred and fifty (2,250) kilo-volt ampere 110,000 13,200-6,600 volt transformer, for the sum of..... ($) dollars.

At Stratford, Ont.

Three (3) single phase, five hundred (500) kilo-volt ampere 63,500 13,200-6,600 volt transformers, for the sum of.....($) dollars, or as an alternative, one (1) three-phase fifteen hundred (1,500) kilo-volt ampere 110,000 13,200-6,600 volt transformer, for the sum of .....($) dollars.

At St. Thomas, Ont.

Three (3) single phase five hundred (500) kilo-volt ampere 63,500 13,200-6,600 volt transformers for the sum of.....($) dollars, or as an alternative, one (1) three-phase fifteen hundred (1,500) kilo-volt ampere 110,000 13,200-6,600 volt transformer, for the sum of.....($) dollars.

At St. Mary's, Ont.

Three (3) single phase four hundred (400) kilo-volt ampere 63,500 13,200-6,600 volt transformers for the sum of.....($) dollars, or as an alternative, one (1) three-phase twelve hundred (1,200) kilo-volt ampere 110,000 13,200-6,600 volt transformer, for the sum of.....($) dollars.

Also.....will supply the following spare transformers erected with oil and accessories complete in Dundas, London, Guelph or Stratford stations:

One 1,250 kilo-volt ampere 63,500-13,200 transformer for the sum of..... ($) dollars.

One 750 kilo-volt ampere 63,500-13,200 transformer for the sum of..... ($) dollars

One 500 kilo-volt ampere 63,500-13,200 transformer for the sum of..... ($) dollars

One 400 kilo-volt ampere 63,500-13,200 transformer for the sum of..... ($) dollars

Or the following three-phase 110,000-13,200 volt transformers:

One 2,250 kilo-volt ampere.....($) dollars
One 1,500 kilo-volt ampere .....($) dollars.
One 1,200 kilo-volt ampere .....($) dollars.
One 3,750 kilo-volt ampere .....($) dollars.

As an alternative for Guelph, Stratford, St. Mary's and St. Thomas..... supply the following 63,500-2,300 volt single phase and 110,000-2,300 volt three-phase transformers for the price stated.

Guelph.

Three (3) single phase seven hundred and fifty (750) kilo-volt ampere for the sum of.....($) dollars, or one three-phase twenty-two hundred and fifty (2,250) kilo-volt ampere for the sum of..... ($) dollars.

Stratford.

Three (3) single phase seven hundred (500) kilo-volt ampere for the sum of.....($) dollars, or one (1) three phase fifteen hundred (1,500) kilo-volt ampere for the sum of.....($) dollars.

St. Mary's.

Three (3) single phase four hundred (400) kilo-volt ampere for the sum of .....($) dollars, or one (1) three phase twelve hundred (1,200) kilo-volt ampere for the sum of.....($) dollars.

St. Thomas.

Three (3) single phase five hundred (500) kilo-volt ampere for the sum of .....($) dollars, or one three phase fifteen hundred (1,500) kilo-volt ampere for the sum of.....($) dollars.

....., hereby offer and agree to deliver all parts of the transformers and all necessary erecting materials within.....months after the letting of the Contract; and.....hereby agree to erect these transformers ready for test in place on foundations within.....weeks after delivery of the materials and plant at the transformer stations and after notification of the Engineer to begin erection.

The following are the estimated weights and quantities of oil required for transformers:

SINGLE PHASE.

K. V. Amp.	400	500	750	1,250	3,000
Weight of Core.					
Weight of Case.					
Weight of Oil.					
Gallons of Oil.					

THREE PHASE.

K. V. Amp.	1,200	1,500	2,250	3,750	9,000
Weight of Core.					
Weight of Case.					
Weight of Oil.					
Gallons of Oil.					

The following are the estimated gallons of water required for cooling purposes:

K. V. A. Single Phase.	400	500	750	1,250	3,000
Gallons per minute.					
40° C. Full Load.					
24 hour run.					

K. V. A. Single Phase.	400	500	750	1,250	3,000
Gallons per minute.					
55° C. 1¼ Load.					
24 hours run.					

K. V. A. Three Phase.	1,200	1,500	2,250	3,750	9,000
Gallons per minute.					
40° C. Full Load.					
24 hour run.					
Gallons per minute.					
55° C. 1¼ Load.					
24 hour run.					

.....hereby guarantee the following efficiencies at respective loads for single phase 63,500-13,200 volt transformers:—

At 100 per cent. Power Factor.

K. V. A. Capacity.	400	500	750	1,250	3,000
Full Load.					
¾ Load.					
½ Load.					
¼ Load.					

At 80 per cent. Power Factor.

K. V. A. Capacity.	400	500	750	1,250	3,000
Full Load.					
¾ Load.					
½ Load					
¼ Load.					

.....hereby guarantee the following efficiencies at respective loading and power factor for three phase 110,000-13,200 volt transformers.

At 100 per cent. Power Factor.

K. V. A. Capacity.	1,200	1,500	2,250	3,750	9,000
Full Load.					
¾ Load.					
½ Load.					
¼ Load.					

At 80 per cent. Power Factor.

K. V. A. Capacity.	1,200	1,500	2,250	3,750	9,000
Full Load.					
¾ Load.					
½ Load.					
¼ Load					

.....hereby guarantee the following regulations:—

SINGLE PHASE.

K. V. A. Capacity.	400	500	750	1,250	3,000
At 100 per cent. Power Factor.					
At 80 per cent. Power Factor.					

THREE PHASE.

K. V. A. Capacity.	1,200	1,500	2,250	3,750	9,000
At 100 per cent. Power Factor.					

.....hereby submit attached methods of calculating the above efficiences and regulations, along with characteristic curves and data:

.....further hold.....ready promptly to enter into a Contract in form satisfactory to the Commission for the due and proper execution of the work at the above stated prices, and on terms herein stated, and.....further agree to furnish security for the due performance of the Contract in the form of a bond of Sixty Thousand (60,000) Dollars with sureties to the satisfaction of the Commission.

.....herewith enclose an accepted bank cheque payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario for the sum of Fifteen Thousand (15,000) Dollars as required in the "Instructions to Bidders," dated August 29th, 1908.

.....hereby certify that.....have carefully investigated all conditions and items of cost which may or can possibly enter into the cost of the work to be performed.

Signed.....

Post Office Address.....

Dated at .....1908.

Specifications and plans were prepared for High Tension Insulators and tenders were called for Dec. 15th, 1908. A copy of the advertisement, which was inserted in all leading journals and papers, is herewith reproduced:

HYDRO-ELECTRIC POWER COMMISSION.

TENDERS FOR HIGH TENSION INSULATORS

Tenders will be received up to 5 p.m. Tuesday, December 15th, 1908, for the manufacture and delivery of Fifteen Thousand High Tension Insulators for operation on the Commission's 110,000 volt transmission lines, according to the plans and specifications to be obtained at the Commission's Office, Continental Life Building, Toronto.

Contractors are requested to bear in mind that tenders may not be considered unless made upon forms supplied with specifications.

An accepted bank cheque for the sum of seven thousand five hundred dollars ($7,500) must accompany each tender, which sum will be forfeited, if the party tendering declines entering into a contract for the work, at rates stated in tender.

The lowest or any tender not necessarily accepted.

Tenders must be sealed and addressed: Hon. Adam Beck Chairman of the Hydro-Electric Power Commission of Ontario, Toronto, Ont.

Tenders were received from several firms in the United States and from one German firm, but owing to the large amount of experimenting and testing necessary to ascertain the relative qualities of the different insulators, the contracts will not be let until 1909.

INSTRUCTIONS TO BIDDERS ATTACHED TO SPECIFICATION FOR HIGH TENSION TRANSMISSION LINE INSULATORS.

1. Tenders will be received up till 5 p.m., Tuesday, December 15th, 1908, by the Hydro-Electric Power Commission of Ontario for the supply of all materials, the manufacture and delivery F.O.B. cars at stations along the route of the

transmission line, of "HIGH TENSION TRANSMISSION LINE INSULATORS," as specified.

2. Each tender shall be enclosed in a sealed envelope marked "TENDER FOR HIGH TENSION TRANSMISSION LINE INSULATORS," and addressed to the Hon. Adam Beck, Chairman of the Hydro-Electric Power Commission of Ontario, Toronto, Ontario.

3. The signatures of parties tendering shall be in their respective handwriting.

4. Tenders shall indicate the shortest period of time within which the Tenderer will guarantee the delivery of the first thousand insulators, after which he shall deliver at the minimum rate of twelve hundred (1200 insulators per month. Insulators shall be delivered F.O.B. sidings as directed, with customs duties and all charges paid.

5. Tenders shall be submitted on the accompanying "Form of Tender" with the Tenderer's attached schedule of tests, data, etc. Any tenders offered on other forms, or with erasures or alterations may be rejected as informal.

The Tenderer may also attach and submit additional alternative tenders for the work specified.

6. Tenders shall be accompanied by these "Instructions to Bidders" attached to specifications for "HIGH TENSION TRANSMISSION LINE INSULATORS," "SPECIFICATIONS FOR HIGH TENSION TRANSMISSION LINE INSULATORS," with attached "FORM OF TENDER," and plans and drawings accompanying specifications, along with Tenderer's Schedule of Tests, Data, etc., attached to the Form of Tender, all of which shall form a part of the Contract to be entered into by the successful Tenderer.

7. The Tenderer shall state prices for the insulators, delivered F.O.B. stations, all charges and customs duties paid.

8. Each tender shall be accompanied by a certified cheque for Seven Thousand Five Hundred ($7,500) dollars, which certified cheque shall be forfeited to the Hydro-Electric Power Commission as liquidated damages, in case the Tenderer fails to execute the necessary contracts herein referred to within two weeks after notification to him from the Commission so to do.

Cheques shall be returned to the respective bidders by the Commission upon the awarding and execution of the contracts as aforesaid, and at any rate within sixty (60) days from the date of the opening of bids.

The successful Tenderer will be required to execute a satisfactory bond in the sum of Thirty-seven Thousand Five Hundred ($37,500) dollars for the proper performance of the work embraced in the contract.

The Commission reserves the right to reject any or all tenders. The lowest or any tender will not necessarily be accepted.

The Contract shall contain clauses protecting the Commission from monetary loss due to patent litigation, negligence, defective material or workmanship or the use of unproven apparatus.

Dated November 14th, 1908.

FORM OF TENDER ATTACHED TO SPECIFICATION FOR HIGH TENSION TRANSMISSION LINE INSULATORS.

....., the undersigned, hereby offer and agree to furnish to the Hydro-Electric Power Commission of Ontario, all the necessary material, labor, machinery and equipment for the execution and completion in

a satisfactory manner of all the work required in connection with the manufacture, testing and safe delivery of fifteen thousand (15,000) complete High Tension Insulators, all according to attached specification as follows:—

(a) Thirteen thousand three hundred and fifty (13,350) complete Suspension Insulators for the sum of .....($) per one hundred (100).

(b) One thousand six hundred and fifty (1,650) complete Strain Insulators for the sum of .....($) per one hundred (100).

These insulators to be delivered F.O.B. cars at points as designated in the attached specification of High Tension Insulators for the Hydro-Electric Power Commission's Transmission Line.

In addition to the above order ..... further offer and agree to supply, if ordered within six (6) months after awarding of above contract:—

(1) 1,000 Suspension Insulators for the sum of .....($) per one hundred (100).

(2) 2,000 Suspension Insulators for the sum of ..... ($) per one hundred (100).

(3) 3,000 Suspension Insulators for the sum of ..... ($) per one hundred (100).

(4) 4,000 Suspension Insulators for the sum of ..... ($) per one hundred (100).

(5) 5,000 Suspension Insulators for the sum of ..... ($) per one hundred (100).

(6) 10,000 Suspension Insulators for the sum of ..... ($) per one hundred (100).

(7) 100 Strain Insulators for the sum of .....($) per one hundred (100).

(8) 200 Strain Insulators for the sum of .....($) per one hundred (100).

(9) 300 Strain Insulators for the sum of .....($) per one hundred (100).

(10) 400 Strain Insulators for the sum of .....($) per one hundred (100).

(11) 500 Strain Insulators for the sum of .....($) per one hundred (100).

(12) 1,000 Strain Insulators for the sum of .....($) per one hundred (100).

All the above additional insulators to be delivered F.O.B. cars at Dundas, Ont., all according to attached specification.

....., hereby offer and agree to deliver one thousand (1,000) complete insulators and accessories within ..... weeks after execution of the contract.

....., further offer and agree to continuously deliver complete insulators at the rate of not less than twelve hundred (1200) complete insulators per month until all are delivered.

....., further hold .....ready promptly to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work at the above price, and security for the due performance of the contract in the form of a bond of .....dollars ($) with sureties to the satisfaction of the Commission.

....., herewith enclose an accepted bank cheque payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario, for the sum of ..... dollars ($) as requested in the "Instructions to Bidders," dated November 14th, 1908.

....., hereby certify that .....have carefully investigated all conditions and the items of cost which may or can possibly enter into the cost of the work to be .....

Signed .....

Post Office Address .....

Dated at .....

..... 1908.

MUNICIPAL WORK.

During the year 1906 your Commission were busily engaged preparing several sets of estimates for the various municipalities in the Niagara Power Zone, as to the cost of power and the cost of internal distribution in these municipalities. Engineers were sent throughout the Province to obtain data as to the probable consumption of power throughout the municipalities of Western Ontario, and complete information in this connection was obtained.

A great deal of time was spent also on the question of supplying power for the city of Ottawa. Numerous and lengthy negotiations took place between the Commission and the officials of the city of Ottawa, and the Commission asked for tenders from the Ottawa & Hull Power Manufacturing Co., The Metropolitan Electrical Co. of Ottawa, Hon. Wm. Harty, Kingston, the latter named having rights at Chats Falls. Contract with the Ottawa & Hull Power Manufacturing Co. was prepared, their offer being the most satisfactory, and the Commission prepared a By-law for the city of Ottawa to be voted on the 1st of January, 1907.

During this year several organization meetings of the municipalities throughout Western Ontario were held. The year proved to be of great value in getting the question of Hydro-Electric Power organized and properly understood by the people throughout the Province.

At the beginning of the year 1907 the city of Ottawa submitted a By-law to enter into a contract with the Commission, which was carried by a large majority. After further negotiations this By-law was ratified by the City Council, and the Commission entered into a contract with the Ottawa & Hull Power Manufacturing Co. Copies of the By-law and Contract follow:

By-Law No. 2690.

A By-law to authorize the execution of an agreement with the Hydro-Electric Power Commission of Ontario.

The Municipal Council of the Corporation of the City of Ottawa enacts as follows:—

1. That certain agreement between the Hydro-Electric Power Commission of Ontario and the Corporation of the City of Ottawa, a copy of which is annexed as Schedule "A" to this By-law, and the terms and provisions thereof are hereby approved.

2. His Worship the Mayor of the said City of Ottawa is hereby authorized and instructed to execute the said agreement on behalf of the said Corporation and the Clerk of the said City is hereby authorized and instructed to affix thereto the Corporate Seal of the said City.

Given under the Corporate Seal of the City of Ottawa this 6th day of August, 1907.

Certified.

(Sgd.) JOHN HENDERSON, City Clerk. (Sgd.) D'ARCY SCOTT, Mayor.

MEMORANDUM OF AGREEMENT, DATED JULY, 1907.

Between:—

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission," of the first part,

and

MUNICIPAL CORPORATION OF THE CITY OF OTTAWA, hereinafter called the "Municipal Corporation,"

of the second part.

WHEREAS, by the Power Commssion Act passed by the Legislature of the Province of Ontario in the seventh year of the reign of His Majesty King Edward VII., and chaptered 19, it was, among other things enacted, that any Municipal Corporation might apply to the Commission for the transmission of such electrical power and energy for the uses of the Corporation and the inhabitants thereof, for light, heat and power purposes.

And whereas the Municipal Corporation has applied to the Commission for the transmission to the Corporation of electrical power and energy.

And whereas the Commission has entered into an agreement, a copy of which is hereto annexed, dated , 1907, with the Ottawa and Hull Power Manufacturing Company, hereafter called the "Company," for the delivery to the Commission of electrical power and energy to be transmitted to the Corporation.

And whereas, under the thirteenth clause of the said annexed agreement "The Commission" agrees that it will enter into an agreement with the Municipal Corporation of the City of Ottawa for the resale of the electrical power hereby contracted for, and such agreement shall contain (inter alia) assignable covenants on the part of the said Corporation.

(a) To pay for electrical power hereby sold at the rate and in the manner herein provided.

(b) That the said Corporation will not, during the currency of this agreement, obtain electric power from any source other than the Commission, or the Company, until the said 2,500 horse power shall have been taken from the Company unless the Company is unwilling to supply to the Commission on the terms set forth in paragraph (1) hereof, such power as the said Corporation may require.

(c) To observe and perform the covenants and conditions herein contained binding upon the Commission, and especially the terms of the seventh paragraph hereof.

Now, therefore, this agreement witnesseth that in consideration of the mutual covenants and agreements herein contained, the Commission for itself, its successors and assigns, and the Municipal Corporation for itself, its successors and assigns, mutually covenant and agree with each other as follows:

(1) The Commission shall deliver to the Municipal Corporation and the Municipal Corporation shall pay for and take from the Commission electrical power for the period, for the prices, upon the terms and conditions, at the times and places and in the quantities as furnished to the Commission in the said annexed agreement with the Company, and the Municipal Corporation shall be liable to the Commission for the receipt and payment for such electrical power, and additional power furnished under said agreement, in the same manner and to the same extent as it would have been if the said agreement between the Commission and the Company had been made directly between the Company and the Municipal Corporation.

(2) The Municipal Corporation covenants and agrees that the power sold under this contract may be used by the Corporation for any purpose whatever within the limits (present or future) of the Municipal Corporation or County of Carleton, but that the electrical power so supplied shall not be resold or used by any Electric Railway Company, or by any other person, or Company operating under a Municipal Franchise for distribution of electricity.

(3) The Municipal Corporation further covenants and agrees that is shall arrange to use all power delivered by the Company under the annexed agreement in a manner that will not cause sudden fluctuations in the demand for power, hunting, pumping or other disturbances, thereby interfering with the Company's system.

In the event of a shut-down of the whole power contracted for by the said annexed agreement occurring from any cause whatsoever the Municipal Corporation shall give the Company due notice by telephone or otherwise of the intention to again start the machinery connected with the power to be supplied by the Commission under this agreement.

The Municipal Corporation shall not allow such machinery to be started before being advised by the Company that everything is in order and everything is ready for its use.

(4) It is understood and agreed that the Commission shall deliver the full amount of power called for under this contract after such quantity is supplied by the Company under the annexed agreement, and the Commission shall only be bound to supply such power as desirous from the Company; but the Municipal Corporation shall have no right under this contract to use at any time more power than it may be entitled to use, as set forth in the said annexed agreement, and the Company shall have the right to supply power through or controlled by an automatic switch or circuit-breaker for cutting off the system from the line or lines used to supply power to the Commission when the power taken exceeds the amount to be paid for by more than 10 per cent., the excess of 10 per cent. being allowed for taking care of the instantaneous fluctuations of the system supplied by such power that may occur from some momentary abnormal condition.

The Company shall have the right to install excess or curve-in watt meters for the purpose of determining the amount of excess power, and if the amount so indicated is greater than required for taking care of such occasional instantaneous fluctuations then such excess shall be paid for in blocks of 200 horsepower under the terms and conditions and during the remainder of the life of the said annexed agreement.

In case, however, of short circuit, causing an increase of load to an extent in excess of the quantity of power which the Municipal Corporation is entitled to use, the Municipal Corporation shall not be bound to pay for the same for the remainder of the life of the said annexed agreement, but the Company may cut off the circuit on which such short circuit shall occur and leave it off until the cause of such short circuit has been removed, and the Municipal Corporation shall not be entitled to any rebate for the time for which current shall not be supplied by reason thereof.

If the Municipal Corporation shall at any time make default in payment of any moneys payable under this contract at the times and places named in the said annexed agreement mentioned, and such default shall continue for a period of one month, the Commission may then notify the Municipal Corporation that it intends to cancel and forfeit this contract, and if within one month from the receipt of such notice the moneys which may have accrued due since the date of such default

remain unpaid, the Commission may by notice in writing to the Municipal Corporation cancel and annul this contract, and it shall, from and after the date of delivery of such notice, absolutely cease to be binding upon either party saving any claims or rights of action then already accrued, but the Municipal Corporation shall nevertheless remain liable to the Commission for the damages arising from the determination of this contract. Provided that the option of the Commission to cancel this contract in case of such default as aforesaid on the part of the Municipal Corporation may be exercised, and necessary notices may be given whenever such default as aforesaid shall occur, and the omission to give such notice shall not be deemed to be a waiver of the right of the Commission to give such notices and to cancel this contract in case of such default as aforesaid, upon any subsequent occasion or occasions.

Inasmuch as the Municipal Corporation requires the supply of electrical power continuously and uninterruptedly throughout each and every day of the period of the said annexed agreement, the parties hereto agree that for each and every day and proportionately for any portion of a day thereof, the Company shall fail to deliver power as agreed by reason of negligence on the part of the Company the Commission shall repay to the Municipal Corporation the sum received from the Company under the said annexed agreement, which sum shall be equal to double the proportionate part of the contract price for the time during which such power shall not be delivered, as full liquidated and ascertained damages. In case the supply of power shall be interrupted or fail whether by the act of God, ice, or accident in any way, the Commission shall not be liable for damages for such interruption or failure, or be considered in default provided it use reasonable diligence to restore such supply, but a proportionate abatement shall be made under this contract.

Provided that all due diligence shall be exercised in the removal of the cause preventing delivery of power. In case the Municipal Corporation be rendered unable to receive or utilize to the extent of more than one-half of the average maximum load for the previous 48 hours by reason of the act of God, or (but only on the condition that the main transmission lines from the power house to the sub-station of the City of Ottawa shall be built and thereafter maintained in accordance with the best modern practice in Electrical Engineering) by reason of accident in any way for a longer period than 24 hours, there shall be a proportionate rebate of the price on such amount of power. This rebate, however, in any case shall not be for more than 30 days in any year, and provided always that all due diligence be exercised in the removal of the cause preventing the receiving and utilizing power.

Whenever such suspension occurs and is caused by ice the Municipal Corporation shall request the Company to make every reasonable effort to obtain power from some other water power development for the time of such suspension, and the Corporation agrees to pay the full cost thereof.

This agreement and the covenants and agreements herein contained may be assigned by the Commission to any person, Company or Corporation without the consent, whether verbal or in writing of the Municipal Corporation.

The Municipal Corporation covenants and agrees to observe and perform the covenants and agreements binding upon the Commission contained in the said annexed agreement.

The said Municipal Corporation further covenants and agrees that they will not, during the currency of the said annexed agreement, obtain electrical power from any other source other than the Commission or the said Company until the

said 2,500 horse-power shall be taken from the Company unless the Company is unwilling to supply to the Commission on the terms set forth in the said annexed agreement, such power as the Municipal Corporation may require.

It is understood and agreed between the parties hereto that the Commission shall not be responsible in any manner whatsoever for any damages, injury, loss or accident between the persons or property by the wires, poles, machinery or apparatus placed or constructed, or within the limits of the Municipal Corporation, or by the operation of the work of the same, or by the power transmitted, and if any action is brought against the Commission for any damage, loss, or accident upon the property within the limits of the said City of Ottawa, or any claim is made by the Company to the Commission for such damages under the annexed agreement, the Municipal Corporation shall defend such action at its own cost, and the Municipal Corporation shall be bound to hold the Commission harmless in respect thereof.

It is further understood and agreed that all counterclaims which the Municipal Corporation claim to have against the Commission or the Company shall be notified in writing to the Company during the first 15 days of the month for any claim having arisen during the preceding month. If the said claims should not be allowed by the Company, the same shall be determined by arbitration, as set forth in paragraph 5 of the said annexed agreement.

If default is made at any time in the due performance and observance of the covenants, conditions and provisions herein contained upon the part of the Municipal Corporation, the Commission may forthwith on demand in writing by the Company duly assign to the Company all its right, title and interest in this agreement, and all causes of action which may or shall have arisen in respect thereof.

Signed, Sealed and Delivered in the presence of

MEMORANDUM OF AGREEMENT made this day of

Between

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the Commission of the First Part,

and

THE OTTAWA & HULL POWER & MANUFACTURING COMPANY, LIMITED, hereinafter called the Company of the Second Part:

WHEREAS, by the Power Commission Act passed by the Legislature of the Province of Ontario in the seventh year of the reign of His Majesty King Edward VII., and Chaptered—it was, amongst other things, enacted that any Municipal Corporation might apply to the Hydro-Electric Power Commission of Ontario for the transmission to such Corporation of electrical power and energy for the uses of the Corporation and the inhabitants thereof, for lighting, heating and power purposes.

AND WHEREAS, the Municipal Corporation of the City of Ottawa have applied to the Commission for the transmission to the said Corporation of electrical power and energy,

AND WHEREAS, the Company have agreed to supply the Commission with Electrical Power and energy to be transmitted to the said Corporation,

AND WHEREAS, the Lieutenant-Governor of Ontario in Council, upon the recommendation of the Commission, on the day of duly approved an Order-in-Council authorizing the Commission to enter into this agreement.

NOW, THEREFORE, THIS AGREEMENT WITNESSETH that in consideration of the mutual covenants and agreements herein contained, the Company for itself, its successors and assigns, and the Commission for itself, its successors and assigns, mutually covenant and agree with each other as follows:

(1) The Company shall deliver to the Commission as hereinafter provided, and the Commission shall take from the Company as hereinafter provided, for a period of ten (10) years, commencing on the First day of January, one thousand nine hundred and seven (1907), Electrical Power to the extent of one thousand five hundred (1,500) horse-power.

If, at any time during the currency of this agreement the Commission shall supply or be called upon to supply, directly or indirectly, to the Municipal Corporation of the City of Ottawa, more electrical power than the one thousand five hundred (1,500) horse-power hereby contracted for, it will take and pay for all such additional power, to the extent of one thousand (1,000) horse-power, from the Company in the manner hereinafter provided unless the Company is unwilling to deliver the same, and save as hereinafter provided, it will not obtain the same or any part thereof from any other source.

If and when the Commission requires such additional Electrical Power to be supplied to the Municipal Corporation of the City of Ottawa it shall apply therefor and shall give the Company at least six months' notice in writing, specifying the quantity (in one or more blocks of two hundred (200) horse power), of such power required, and the date when delivery shall be required.

Within ten days after receipt of such application and notice the Company shall notify the Commission whether or not it will supply such additional power or any part thereof (in blocks of two hundred (200) horse power), and the Commission shall be at liberty to obtain from any other person of Company so much of such additional power as the Company may be unwilling to supply without further application to the Company.

The Commission will take and pay for any such additional power to the extent of one thousand (1,000) horse-power (which the Company is willing to supply), during the remainder of the currency of the agreement at the rate and in the manner herein provided. Delivery of such power by the Company to the said Corporation of the City of Ottawa shall be good and sufficient delivery of such power to the Commission for the purposes of this agreement.

(2) The power to be delivered under this agreement shall be delivered at the Ottawa City Limits at the Chaudiere Bridge, but shall be measured by recording instruments supplied by the Company as herein provided in the Company's Power House in Hull, in the Province of Quebec, and no abatement shall be made for any loss of power between the said Power House and the said City Limits.

The representatives of the Commission shall have at all times the right of access to the said instruments and the records of the power measured for the purpose of reading the said instruments or their records.

A horse-power for the purpose of this Agreement is understood to mean seven hundred and forty-six (746) watts when the power factor of the power taken under this contract is above ninety (90) per cent.

If and when the power factor of the power taken under this Contract falls below ninety (90) per cent., then the said power to be paid for under this Agreement shall be computed by this formula: The volts in each phase multiplied by the amperes in each phase respectively and added together, the whole multiplied by nine-tenths (9-10ths) and divided by seven hundred and forty-six (746) equals horse-power to be paid for.

In case of a dispute as to the accuracy of the instruments, a disinterested expert of recognized authority shall be called in to test such instruments, and his decision shall be final, but if the parties fail to agree upon such expert then each party shall name one expert and these two shall name a third, or referee, and the decision of any one of the said experts and of the referee shall be final and binding upon both parties and the expense of such tests shall be borne as the arbitrators shall decide.

(3) Power to be supplied under this Agreement shall be two-phase alternating current having a periodicity of approximately sixty (60) cycles, and a pressure of approximately two thousand three hundred (2,300) volts, varying under normal conditions between two thousand two hundred and fifty (2,250) and two thousand three hundred and fifty (2,350) volts. The Company shall use all due diligence to prevent greater variation than above provided for, caused by temporary abnormal operating conditions, and the Company shall not be in any way liable if such due diligence be used. The Company shall not be responsible for variations in voltage caused by the methods of using the power.

Provided that if required to do so by the Commission, by one year's previous notice in writing, within five years from the first day of January, one thousand nine hundred and seven (1907), the Company will change the said current to three-phase alternating current, having a periodicity of approximately sixty (60) cycles, and a pressure of approximately eleven thousand (11,000) volts. The exact voltage will be specified by the Company when such change is to be made, and the voltage so specified shall not vary under normal conditions more than two and one-half per cent. (2½) either way at the Company's Power House. The Company shall use all due diligence to prevent greater variation than above provided for caused by temporary abnormal operating conditions, and the Company shall not be in any way liable if such due diligence is used. The Commission agrees that if the change in the voltage above provided is made the transformers for receiving the power at approximately eleven thousand (11,000) volts will be provided, with the necessary taps recommended by the Company. The Company shall not be responsible for variations in voltage caused by the methods of using the power hereby sold.

And provided that if power is required to be divided at approximately eleven thousand (11,000) volts, the Commission will pay the Company an additional amount per annum equal to fifteen per cent. (15%) on the market value of two transformers having sufficient capacity to raise the total amount of power contracted for herein from approximately two thousand three hundred (2,300) volts to approximately eleven thousand (11,000) volts, the value of the transformers to be based on the market price of transformers, equal, in every respect, to those now installed in the Power House of the Ottawa and Hull Power and Manufacturing Company—the market price to be that existing at the time change in voltage is ordered.

The said power shall be supplied continuously for each and every day of the year and for the purpose of this agreement a day shall mean a full day of twenty-four (24) hours.

(4) For the said one thousand five hundred (1,500) horse power so contracted for, the Commission shall pay to the Company the flat rate sum of fifteen dollars ($15.00) for each horse-power for each year.

And for such additional power applied for by the Commission as herein provided for in blocks of two hundred (200) horse-power, at the same rate (and pro rata for any portion of the year) until the termination of this agreement and un-

der the same conditions as specified for the power herein contracted for, payments for such additional power shall be computed from the day of the first delivery of said additional power. Should power in excess of the quantity herein contracted for be delivered to the City of Ottawa for more than ten (10) minutes consecutively or twenty (20) minutes in the aggregate in any one day, as shown by the measurements herein provided, the Commission will pay for such excess in blocks of two hundred (200) horse-power at the same rate and in the same manner as provided for the power herein contracted for.

(5) The Commission agrees to pay the Company on the 15th day of each month for the power delivered or under contract during the preceding month, and such payments shall be made promptly and when due, without deduction for counter claims or otherwise.

All counter claims which the Commission may have or claim to have against the Company shall be notified in writing to the latter during the first fifteen days of each month for any claim having arisen during the preceding month. If the said claims should not be allowed by the Company the parties hereto agree to submit the same to the arbitration of two arbitrators, one named by either party. If the said arbitrators do not agree they shall appoint a referee, and the decision of any one of the said arbitrators and of the referee shall be final and binding upon both parties hereto. Both parties agree that the proceedings upon such arbitrations shall be conducted with all possible despatch. The expense of such arbitration shall be borne as the arbitrators shall decide.

(6) The Company shall not be responsible in any manner whatsoever for any damage, injury, loss or accident to either persons or property by the wires, poles, machinery or apparatus placed or constructed or being within the limits of the City of Ottawa or by the operation or working of the same or by the power transmitted thereupon, and if any action is brought, or any claim is made against the Company for any damage, loss or accident upon the property within the said City limits, the Commission shall defend the same at its own cost and charge to the complete exoneration of the Company, and shall be bound to hold the latter harmless in respect thereof.

(7) It is understood and agreed that the power sold under this contract may, save as hereinafter provided, be used by the Commission for any purposes whatever within the limits of the Municipal Corporation of the City of Ottawa (present or future) or County of Carleton, but it shall not be resold to or used by any Electric Railway Company or to or by any other Company or person operating under a Municipal franchise for the sale or distribution of electricity.

(8) The Commission shall arrange to use all power delivered by the Company under this contract in a manner that will not cause sudden fluctuations in the demand for power, hunting, pumping, or other disturbances thereby interfering with the Company's system.

In the event of a shut-down of the whole power hereby contracted for occurring from any cause whatsoever, the Commission shall give the Company due notice by telephone or otherwise, of the intention to again start the machinery in connection with the power to be supplied by the Commission. The Commission shall not again allow such machinery to be started before being advised by the Company that everything is in order and everything is ready for its use.

(9) The Company shall deliver the full amount of power called for under this contract, but the Commission has no right under this contract to use at any time more power than it may be entitled to use as herein set forth, and the Company has the right to supply power through or controlled by an automatic switch or

circuit breaker for cutting off the Company's system from the line or lines used to supply power to the Commission, when the power taken exceeds the amount to be paid for by more than ten (10) per cent., the excess of ten (10) per cent. being allowed for taking care of the instantaneous fluctuations of the system supplied by such power that may occur from some momentary abnormal condition.

The Company shall have the right to install excess or curve-drawing watt meters for the purpose of determining the amount of excess power, and if the amount so indicated is greater than required for taking care of such occasional instantaneous fluctuations, then such excess shall be paid for in blocks of 200 horse-power under the terms and conditions and during the remainder of the life of this contract.

In case, however, of short circuits causing an increase of load to an extent in excess of the quantity of power which the Commission is entitled to use, the Commission shall not be bound to pay for same for the remainder of the life of this contract, but the Company may cut off the circuit on which such short circuit shall occur and leave it off until the cause of such short circuit has been removed and the Commission shall not be entitled to any rebate for the time for which current may not be supplied by reason thereof.

(10) If the Commission shall at any time make default in payment of any money payable under this agreement and such default shall continue for a period of one (1) month, the Company may then notify the Commission that it intends to cancel and forfeit this contract, and if within one (1) month from the receipt of such notice the moneys which may have accrued due since the date of such default, the Company may, by notice in writing to the Commission, cancel and annul this contract, and it shall from and after the date of delivery of such notice absolutely cease to be binding upon either party saving any claims or rights of action then already accrued, but the Commission shall nevertheless remain liable to the Company for the damages arising from the determination of this contract. Provided that the option of the Company to cancel this contract in case of such default, as aforesaid on the part of the Commission, may be exercised, and necessary notices may be given whenever such default as aforesaid shall occur, and the omission to give such notice shall not be deemed to be a waiver of the right of the Company to give such notices and to cancel this contract in case of such default as aforesaid upon any subsequent occasion or occasions.

(11) Inasmuch as the Commission requires the supply of electric power continuously and uninterruptedly throughout each and every day of the period of this contract, the parties agree that for each and every day, and proportionately for any portion thereof, on which the Company shall fail to deliver power as agreed by reason of negligence on the part of the Company, the Company shall rebate to the Commission the sum equal to double the proportionate part of the contract price for the time during which such power shall not be delivered, as full, liquidated and ascertained damages. In case the supply of power shall be interrupted or fail, whether from the act of God, ice, or accident in any way, the Power Company shall not be liable for damages in respect to such interruption or failure, nor be considered in default, provided it use reasonable diligence to restore such supply, but a proportionate abatement shall be made in the amount payable under this contract. Provided always that all due diligence shall be exercised in the removal of the cause preventing the delivery of the power. In case the City of Ottawa be rendered unable to receive or utilize to the extent of more than one-half of the average maximum load for the previous forty-eight hours, by reason of the act of God, or (but only on the condition that the main transmission lines from the Power House

to the sub-station of the City of Ottawa shall be built and thereafter maintained in accordance with the best modern practice in Electrical Engineering) by reason of accident of any way, and for a longer period than twenty-four hours, there shall be a proportionate rebate of the price on such amount of power. This rebate, however, in any case, shall not be for more than thirty days in any one year, and provided always that all due diligence be exercised in the removal of the cause preventing the receiving and utilizing power.

Whenever such suspension occurs, and is caused by ice, the Company shall, upon request of the City of Ottawa, make every reasonable effort to obtain power from some other water power development for the time of such suspension, and the Commission agrees to pay the full cost thereof.

(12) This agreement shall not be assigned by the Commission to any person, company or corporation without the consent in writing of the Company, and the Company shall in no case be bound to give such consent.

(13) The Commission agrees that it will enter into an agreement with the Municipal Corporation of the City of Ottawa for the resale of the electrical power hereby contracted for and such agreement shall contain (inter alia) assignable covenants on the part of the said Corporation (1) to pay for electrical power hereby sold at the rate and in the manner herein provided. (2) That the said Corporation will not, during the currency of this agreement, obtain electrical power from any source other than the Commission or the Company until the said 2,500 horse power shall have been taken from the Company, unless the Company is unwilling to supply to the Commission on the terms set forth in paragraph (1) hereof such power as the said Corporation may require. (3) To observe and perform the covenants and conditions herein contained binding upon the Commission and especially the terms of the 7th paragraph hereof.

(14) If default be made at any time in the due performance and observance of the covenants, conditions and provisions herein contained on the part of the Commission, the Commission will forthwith on demand therefor in writing by the Company duly assign to the Company all its right, title and interest in such agreement between the Commission and the said Corporation, and all causes of action which shall have arisen or which may arise in respect thereof.

SIGNED, SEALED AND DELIVERED
In the presence of :

The following letter from the Electrical Commission of the City of Ottawa, dated 3rd Sept., 1908, shows results obtained through the efforts of the Commission on their behalf, also report of the Electrical Commission for the same year.

Ottawa, 3rd Sept., 1908.

Hon. Adam Beck, M.L.A.,
London, Ont.

Re Ottawa's Municipal Electric Light Plant.

Dear Mr. Beck,—Referring to our conversation with you a few days ago, we now put in writing the information we then gave you.

For several years prior to 1901 the Ottawa Electric Company had a monopoly of the electric business in Ottawa. The rates then charged were:—

15c. net per 1,000 watt hours for light.
$40.00 and up per horse-power for power.
$65.00 per arc lamp for lighting the streets.

For three years now the rates have been:

7 1-5c. net per 1,000 watt hours for light.
$25.00 per horse-power for power.
$45.00 per arc lamp for lighting the streets.

How this large reduction came about is as follows:—

In 1901 the city gave a franchise to the Consumers' Electric Company, which latter Company went into operation and began to compete with the Ottawa Company in 1903. As the result of this competition, rates were gradually reduced. In 1904 the two Companies got together, and a Bill was introduced in the Dominion Parliament to authorize the Ottawa Company to absorb the Consumers' Company. The Bill was, through the city's opposition, defeated by two votes that year, but in 1905 it was introduced again. It soon became clear that this time it would carry, and it eventually did. When this seemed certain, it was admitted by the promoters that the intention was to raise the rates. It was claimed by the city that this meant about $150,000 a year more for consumers of electric light and power, to pay.

Before the Bill finally passed, the city exercised a right it had under the franchise given to the Consumers' Company, and bought out the plant of that Company, which was a distributing plant only. The authority for this was contained in a special Act of the City's, passed in 1894 before the Conmee Act.

Immediately upon the city acquiring the distributing plant of the Consumers' Company in 1905, the Ottawa Company took action to prevent its operation by the city, on, amongst other grounds, that the city had no authority to purchase current, as it proposed to do, from a Power Company. The city won in the first Court, but lost by three to two in the Court of Appeal, and the agreement which the city had made with the Power Company was set aside.

We then at once applied to the Hydro-Electric Power Commission for a supply of power, and our application was granted.

After a long negotiation your Commission made an agreement for power with the same Power Company which the city had taken its supply from, and the city made a similar agreement with the Commission. This ended the long litigation and fight between the city and the Ottawa Electric Company.

There were several points on which the Commission secured concessions from the Power Company, and enabled the city to secure power more advantageously than it had previously done.

The principal concession was in the measurement of the power, whereby the city would pay more nearly for the power it actually took. Provision was also made for loss in transmission between the power house and the distributing station. The quantity of power which the city was compelled to take was also made less onerous. There were several other concessions as well.

Since this time everything has run smoothly with the municipal electric plant.

When the city began to do business in 1905 there were:

About 1,200 customers.
The gross revenue was about $35,000 a year.
The net profit was nil.
About 800 horse power was used.

Now in three years the position is:

About 3,000 customers.

The gross revenue will be over $100,000 this year.

The net profit will be over $10,000 after paying interest and sinking fund on the capital invested. This $10,000 will be placed to depreciation account.

About 2,300 horse power is used, and more will soon be needed.

The city does its own street lighting, charging $45 per arc lamp, and making a profit of $5 per lamp on that.

When your Commission made the new contract for power over a year ago about 1,200 horse power was then being used. We pay $15.00 per horse power under this contract.

There can be no doubt that your Commission saved the situation for Ottawa when you stepped in and made the contract referred to. Without this intervention the city would have been out $250,000 spent on a distributing plant, the Ottawa Electric Company would have had a monopoly, and the people of Ottawa would have had to pay at least $100,000 a year more than they are paying now for their electric light.

Ottawa has municipal competition. The city makes fair living rates (which are subject to revision by your Commission), and the Company follows suit. The city cannot make different rates to different persons, but is legally compelled to charge all alike for the same service. Between private companies this is quite different, and frequently one man pays too much and another too little for the same service. We have the same rate for everyone.

There is no indiscriminate rate cutting, charging some people too little one time, and taking it out of them to make up later on.

The city will never give a franchise to any other Electric Company, so that the Ottawa Company will not be compelled to buy off competition at exorbitant prices (afterwards taken out of the customers in increased rates), as they have had to do in the past.

To sum up: Everybody in Ottawa is satisfied, and will do their best to make the present conditions permanent. The people are satisfied because they were saved from a large increase in rates and are ensured reasonable rates. We doubt if anyone in Ottawa desires to change the present conditions.

The only difficulty might be if the City Council at some future time unduly decreased the rates; but this is safeguarded by the provision that these rates are subject to revision by your Commission.

With this safeguard we think we are only expressing the views of the vast majority of the people of Ottawa when we say that the electric situation there is ideal.

You can make whatever use of this letter you see fit.

Yours very truly,

(Signed) J. A. Ellis,
City Treasurer and Secretary of Electric Commission of Ontario.

(Signed) Chas. Hopewell,
Controller, Ottawa.

The Board of Control is the Electric Commission.

Report No. 1, of the Municipal Electric Commission.

To the Council of the Corporation of the City of Ottawa.

Gentlemen,—

1. Your Commission begs to submit herewith the following statements:
   (1) Revenue and expenditure on maintenance account for the year 1908.
   (2) Capital account.
   (3) Installations.
   (4) Summary of business.
   (5) Electric light and power rates in various places.

2. The first Statement shows revenue for 1908 amounting to $106,800.36, and a gross profit for the year of $37,122.29. Deducting interest and sinking fund on $330,000 bonds, leaves a net profit for the year of $17,722.29, which has been carried to capital account.

3. The Capital Account shows an expenditure for the year of $26,079.65, which is provided for by the debenture of $30,000 authorized by the Ontario Railway and Municipal Board. This account has now $517.80 at its credit.

4. The Installation Statement shows that the customers have increased in 1908 from 2,680 to 3,164, and the number of incandescent lamps installed from 50,715 to 61,040.

5. The summary of Business Statement shows that the percentage of cost of maintenance and operation (exclusive of power) to revenue was decreased last year from 43½ per cent. to 35¾ per cent.

6. The city has now been operating the plant for 3½ years. Comparing the business done by the city in 1908 with the last year of operation by the Consumers' Company, the following results are shown:

(*a*) The gross revenue was then $35,207.41. It is now $106,800.36, an increase of over 200 per cent.

(*b*) There was then no profit, and not even sufficient receipts to pay interest on the capital invested. There is now a net profit of $17,722.29, after paying all interest and sinking fund.

(*c*) The number of customers was then 1,314. There are now 3,164, an increase of about 140 per cent.

(*d*) The number of incandescent lamps installed was then 28,160. They are now 61,040.

(*e*) There were then 30 miles of pole lines. There are now 80 miles, of which 40 are for street lighting.

(*f*) When the plant was purchased there were a large number of streets along which the pole lines had but few customers. These lines, consequently, were not paying. An energetic canvass resulted in changing all this, and now the city has customers along all these streets, and its pole lines are fully loaded with the exception of those in one small district.

(*g*) Although the capital invested has been increased only about 60 per cent. (from $200,000 to $330,000), the revenue derived has been increased over 200 per cent.

(*h*) Whilst the revenue has increased over 200 per cent., the expenditure for maintenance and operation has increased only about 110 per cent.

(*i*) The percentage of cost of maintenance and operation (exclusive of power) to revenue was 51 per cent. in the last year of operation by the Consumers' Company. It is now 35¾ per cent.

(*j*) Before the Consumers' Company began to do business the rates were:—
15c. per kilowatt hour for light.
$40.00 and upwards per horse power for power.
$65.00 per arc lamp for lighting the streets.

They are now:
7 1-5c. per kilowatt hour for light.
$25.00 per horse power for power.
$45.00 per arc lamp for lighting the streets.

7. Full information has been obtained as to the rates charged elsewhere, and this has been tabulated in the statement of rates annexed. The rates charged in most of the cities of Canada, as well as in the larger towns of Ontario, are given. Those for Buffalo are also included, as that city obtains its power from Niagara. The rates in 32 cities and towns are given in the Statement.

It will be seen that Vancouver has the cheapest rate for street lighting, and that Ottawa and Fort William come next.

The rate for arc lamps for commercial use is lower in Ottawa than anywhere else.

This is also the case with regard to incandescent lamps for commercial use.

Niagara Falls has the cheapest meter rate for private lighting, and Fort William and St. Catharines are both a shade below Ottawa. With these exceptions Ottawa is the lowest for private lighting.

Niagara Falls has the cheapest power. Port Arthur and Fort William charge the same as Ottawa. All the other places mentioned in the Statement charge more.

Taken all round, the rates charged by the Ottawa municipal plant for light and power are the lowest of any city in Canada, municipal or otherwise.

8. When the plant was purchased in July, 1905, it was found that most of its customers, including all householders, paid the same meter rate. The other customers, consisting of storekeepers, got flat rates.

The following extract from a report of the Electric Commission to Council on 1st June, 1906, which was adopted by Council, explains just what the situation was then, and what was done to remedy it:—

"When the Consumers' Company was operating the plant there was no tariff of charges for flat rates for stores, etc. The result was that different prices were charged for the same services. Whilst the (then) Mayor was in charge of the plant, and before your Commission was appointed, he, on the advice of the Electrical Superintendent, prepared a tariff to apply to all flat rates. This tariff has been in force ever since, the result being that any business taken now is all on the same terms, namely, there is exactly the same price to everyone for the same service. Some of this old flat rate business was done at a loss, whilst in other cases the charges were higher than they should have been. The tariff above mentioned equalizes all this."

Ever since the purchase of the plant the tariff referred to has never in any case been departed from.

The rates charged are subject to the approval of the Hydro-Electric Power Commission, from whom the city purchases its power, and they cannot be changed without the approval of that Commission.

9. Your Commission will continue the policy of extending the pole lines wherever there is sufficient business to warrant it.

Respectfully submitted,

CHAS. HOPEWELL, *Chairman.*
JAS. DAVIDSON.
ROBT. HASTEY.
G. H. WILSON.
NAPOLEON CHAMPAGNE.

Ottawa, 3rd February, 1909.

APPENDIX I.

STATEMENT OF REVENUE AND DISBURSEMENTS ON MAINTENANCE ACCOUNT OF THE MUNICIPAL ELECTRIC DEPARTMENT, FOR THE YEAR ENDING 31ST DECEMBER, 1908.

Revenue.

Gross receipts from all sources:—		
Lighting, heating, power, sale of incandescent lamps, etc., paid to City Treasurer	$104,639 04	
Less Cash on hand, December 31st, 1907	2,153 82	
		$102,485 22
Accounts rendered, but not yet paid	15,309 77	
Value of same on 31st December, as per last statement	12,370 58	
		2,939 19
Amount of money earned for which accounts are not yet rendered	3,000 00	
Less value of same included in last statement	7,000 00	
Cash on hand—		
31st December, 31st, 1908		725 95
Incandescent lamps, arc lamps, globes, and carbons—		
In stock on 31st December, 1908	2,269 36	
Value of same on hand, 31st December, 1907, as per last statement	2,367 59	
Proportion of office rent—		
Paid by the Ottawa and Hull Power and Manfg. Co.		650 00
Total		$106,800 36

Disbursements.

Power	$31,500 00	
Less amount included in last statement and then unpaid	2,625 00	
		28,875 00
Wages and salaries	20,860 82	
Less amount included in last statement and then unpaid	402 86	
		20,457 96
Office rent	1,792 23	
Less amount included in last statement and then unpaid	180 00	
		1,612 23
Accident insurance, etc		145 00
Legal expenses, etc.		361 51
Meter inspection		703 90
Arc lamp, globes and carbons	2,010 11	
Less amount included in last statement and then unpaid	372 15	
		1,637 96
Incandescent lamps	4,356 25	
Less amount included in last statement and then unpaid	80 18	
		4,276 07
Damages, costs, etc., *re* Estate Jas. Mills		2,550 00
Office and other expenses	2,259 63	
Less amount included in last statement and then unpaid	829 27	
		1,430 36

Accounts outstanding—		
Power	$2,875 60	
Office rent	180 00	
Arc lamp globes and carbons	46 20	
Meter inspection	21 25	
Incandescent lamps	276 55	
Sundry expenses	130 80	
		3,529 80
Difference—		
Between value of amounts of money earned for accounts not yet rendered on December 31st, 1907, and December 31st, 1908, as per opposite page		4,000 00
Difference—		
Between value of incandescent lamps, arc lamp globes and carbons on hand, 31st December, 1907, and December 31st, 1908, as per opposite page		98 23
Showing gross profit of $37,122.24.		
Interest and sinking fund		19,400 00
Net profit—		
(After paying interest and sinking fund) transferred to capital account for depreciation		17,722 24
Total		$106,800 36

APPENDIX 2.

Capital Account up to 31st December, 1908.

Assets.

Value of plant purchased from the Consumers' Electric Company		$200,000 00
Expenditure on construction account—		
From 17th July, 1905, to 31st May, 1906		17,738 50
" 1st June, 1906, to 30th November, 1906		17,986 74
" 1st December, 1906, to 31st May, 1907		13,823 25
" 1st June, 1907, to 31st December, 1907		76,364 82
For year ending 31st December, 1908—		
Pole lines	$12,118 23	
Transformers	4,076 12	
Meters	5,830 08	
Arc lamps and apparatus	1,750 66	
Station buildings and equipment	1,030 38	
Sundry supplies	1,274 18	
		26,079 67
Less—		
Stock of poles, transformers, meters, arc lamps, apparatus, etc., on hand, 31st December, 1908	5,422 12	
Expenditures in extension to plant for year ending 31st December, 1908	20,657 53	
		$346,570 84
Deducted from value of plant for depreciation—		
Balance of profit brought forward from profit and loss account on 31st May, 1907	$4,703 27	
Balance of profit brought forward from maintenance account on 31st December, 1907	85 20	
Balance of profit brought forward from maintenance account on 31st December, 1908	17,722 29	
		22,510 76
Value of plant on 31st December, 1908		324,060 08
Poles, wire, transformers, meters, arc lamps and apparatus, etc., in stock on 31st December, 1908		5,422 12
Balance at credit		517 80
Total		$330,000 00

Liabilities.

Debentures issued—	
To pay Consumers' Electric Company for plant	$200,000 00
For extensions to plant in 1906	50,000 00
For street lighting in 1907	50,000 00
For extensions in 1908	30,000 00
Total	$330,000 00

APPENDIX 3—STATEMENT OF INSTALLATIONS.

	7th July, 1905.	31st May, 1906.	31st May, 1907.	31st Dec., 1907.	31st Dec., 1908.
Incandescent Lamps	28,160	34,904	46,730	50,715	61,040
Arc Lamps	175	177	249	817	841
Motors	64	81	86	88	98
Customers	1,314	1,840	2,395	2,680	3,164

APPENDIX 4—SUMMARY OF BUSINESS.

Period.	Revenue.	Expenditure.			Profit.	Percentage of Maintenance and Operation, exclusive of Power, to Revenue.
		Power.	Maintenance and Operation.	On account Interest.		
Consumers Co.:	$ c.	$ c.	$ c.	$ c.	$ c.	
Year ending 30th April, 1904	24,383 68	6,036 66	18,011 20	335 82		74
Year ending 30th April, 1905	35,207 41	10,125 00	17,988 07	7,094 34		51
Municipal:				Interest and Sinking Fund.		
10½ months, from 17th July, 1905, to 31st May, 1906	47,313 59	16,875 00	18,869 05	11,257 54	312 00	40
Year, from 1st June, 1906, to 31st May, 1907	67,993 81	22,500 00	27,377 54	13,725 00	4,391 27	40
7 months, from 1st June, 1907, to 31st December, 1907	40,556 51	13,875 00	17,700 50	8,895 81	85 20	43
Year, ending 31st December, 1908	106,800 36	31,500 00	38,178 07	19,400 00	17,722 29	35

APPENDIX 5.

STATEMENT AS TO ELECTRIC LIGHT AND POWER RATES IN VARIOUS PLACES.

		Street Lights, per Arc Lamp.	Power, per Horse Power.	Arc Lamps, for Commercial use.	Meter Rate, for Private Lighting, per K.W. hour net.	Meter Rate, for Commercial Lighting, per K.W. hour net.	Flat rate, for Commercial Lighting, per 16 Candle Power Lamp.
					c.	c.	
Brantford	Company	$55 00	$30 to $63		$8\frac{1}{10}$	$8\frac{1}{10}$	
Brockville	Municipal	62 50		$105.00	10	10	$9 down
Buffalo, N.Y.	Company	75 00	$28 to $53		10	*4 to 12	
Calgary	Municipal	156 00	*$4\frac{5}{10}$ to $5\frac{5}{100}$ per K.W. hour		$10\frac{1}{5}$	$7\frac{8}{10}$ to $10\frac{4}{10}$	$9.00
Cornwall	Company	82 12	$20 to $30	$73.00	$13\frac{1}{2}$	$13\frac{1}{2}$	$5.40
Edmonton	Municipal	*5c. per K.W. hour	*$3\frac{1}{2}$c. to 8c. per K.W. hour	*$7\frac{1}{2}$c. per K.W. hour	$7\frac{1}{2}$	$7\frac{1}{2}$	
Fredericton, N.B.	Company				12	12	
Fort William	Municipal	45 00	$25 00	*$6\frac{5}{10}$c. per K.W. hour	$6\frac{3}{10}$	$6\frac{3}{10}$	
Galt	Company	75 00		$52.00	12		
Guelph	Municipal	60 00	*3c. to 5c. per K.W. hour	$73.00	10	10	
Halifax	Company	65 00	*$11\frac{1}{2}$c. per K.W. hour		15 with 10 p.c. to 25 p.c. dis.	15 with 10 p.c. to 25 p.c. dis.	
Hamilton	"	47 50	*1c. to 3c. per K.W. hour A.C. $40 to $80 D.C.	*$4\frac{5}{10}$c. per K.W. hour and $12.00	*$5\frac{10.4}{100}$ to $7\frac{10.5}{100}$		$1.20 and *$4\frac{5}{100}$ per K.W. hour
Kingston	Municipal	60 00	*5c. to 10c. per K.W. hour		10	10	
London, Ont.	Company	83 95			9		
Montreal	"	60 00	$30 to $70 A.C. $95 to $120 D.C.		$7\frac{1}{2}$ to $13\frac{1}{2}$	$7\frac{1}{2}$ to $13\frac{1}{2}$	
Niagara Falls, Ont.	Municipal	85 00	$20 00		$4\frac{1}{2}$		$2.64
Owen Sound	"	51 00			$7\frac{1}{2}$ to 10	$7\frac{1}{2}$ to 10	
Ottawa	"	45 00	$17.50 limited $25.00 A.C. $30.00 D.C.	$30 limited $36 unlimited	$7\frac{1}{8}$	$7\frac{1}{8}$	$2.52
Pembroke	Company	55 00			8 to 12		$3.60 to $6.00

APPENDIX 5—Concluded.

STATEMENT AS TO ELECTRIC LIGHT AND POWER RATES IN VARIOUS PLACES.—Concluded.

		Street Lights, per Arc Lamp.	Power, per Horse Power.	Arc Lamps, for Commercial use.	Meter Rate, for Private Lighting, per K.W. hour net.	Meter Rate, for Commercial Lighting, per K.W. hour net.	Flat Rate for Commercial Lighting, per 16 Candle Power Lamp.
Peterborough	Company	$50 00	$20 to $40	*10c. per K.W. hour	c. 7½	c. 10	$3.00
Port Arthur	Municipal	48 00	$25.00	$45.00	6 to 10 with discount		$2.88
Quebec	Company	62 10			12	12	
Regina	Municipal	87 50			9	8	
St. John, N.B.	Company	75 00	*5c. to 10c. per K.W. hour.	*10c. per K.W. hour	10 to 13½	10 to 13½	
Sherbrooke	Municipal	60 00	$24 to $60	*9½c. per K.W. hour	9½		$5.70
St. Thomas	"	91 25	*7c. per K.W. hour	$91 25	10	10	
St. Catharines	Company	50 00		$35.04	7	7	
Toronto	"	69 35	$30 to $90	*12c. per K.W. hour	8	12	
Windsor	Municipal			$72.00			
Victoria, B.C.	Company		*2c. to 7c. per K.W. hour		8 to 12		
Vancouver	"	38 00	*2c. to 7c. per K.W. hour	*$3.00 and 3c. to 10c. per K.W. hour	*3 to 10	*3 to 10	
Winnipeg	"	61 12	*2 7/10c. to 5 4/10c.	*9c. per K.W. hour	9	9	

Where there are blanks, prices are not obtainable, or services not given.
*Rates marked thus, reduced to same basis as Ottawa Municipal rates, are greater than the latter.
1 cent per K.W. hour for power = $23.00 per horse power. 1 cent per K.W. hour for Arc lamps = $15.00 per lamp.

The year 1908 was an extremely busy one, and of great utility to the Province. In January of this year, thirteen municipalities submitted to the people by-laws to raise sums of money to cover the cost of distribution of power to be purchased from the Hydro-Electric Power Commission. In spite of tremendous, and in a great many cases unfair, opposition the by-laws were carried by large majorities in the municipalities of Toronto, Hamilton, London, St. Thomas, Brantford, Galt, Stratford, Woodstock, Guelph, Waterloo, St. Mary's, Hespeler, and New Hamburg. Ingersoll defeated the by-law to purchase a local system as the electors considered that the price asked was too high, but they have since entered into a contract with the Commission for a supply of power, together with the following towns and cities:—

Toronto	10,000 H.P.
London	5,000 "
Guelph	2,500 "
St. Thomas	1,500 "
Woodstock	1,200 "
Ingersoll	500 "
Berlin	1,000 "
Hespeler	400 "
St. Mary's	500 "
Preston	600 "
Waterloo	685 "
New Hamburg	250 "
Stratford	1,000 "

The following is copy of Agreement entered into between the Commission and municipalties:—

This Indenture made the 4th day of May, 1908. Between the Hydro-Electric Power Commission of Ontario, acting herein on its own behalf and with the approval of the Lieutenant-Governor-in-Council, (hereinafter called the Commission), party of the First Part, and The Municipal Corporations of Toronto, London, Guelph, Stratford, St. Thomas, Woodstock, Berlin, Galt, Hespeler, St. Mary's, Preston, Waterloo, New Hamburg, and Ingersoll, (hereinafter called the Corporations), parties of the Second Part.

Whereas pursuant to "An Act to provide for transmission of electrical power to municipalities," the Corporations applied to the Commission to transmit and supply such power from Niagara Falls, and the Commission entered into contracts, hereto attached, with the Ontario Power Company of Niagara Falls, (here inafter called the Company), for such power at the prices set forth in the schedule, hereto attached, and the Commission furnished the Corporations with estimates, as shown in the schedules of the total cost of such power, ready for distribution within the limits of the Corporations, and the electors of the Corporations assented to By-laws authorizing the Corporations to enter into a contract with the Commission for such power, and the Commission have estimated the line loss and the cost to construct, operate, maintain, repair, renew and insure a line to transmit, nominally, 30,000 horse power with total capacity of 60,000 horse power of such power to the Corporations, and have apportioned the part of such cost to be paid by each Corporation as shown in said schedule;

Now therefore this Indenture witnesseth that in consideration of the premises and of the agreements of the Corporations herein set forth, subject to the provisions of said Act and of the said contracts, the Commission agrees with the Corporations respectively:—

1.—(*a*) To construct a line to transmit the quantities of electric power, shown in column 2 of the said schedule from Niagara Falls to the Corporations shown in column 1, respectively.

(*b*) On the 19th day of March, 1910, or on any earlier day on which the Commission shall be prepared to supply the same, to supply said power in quantities set forth in column 2 of said schedule, or as a minimum 40 per cent. less, if written notice of minimum required is given on or before 19th July, 1909, to the Corporations within the limits thereof, ready for distribution at approximately the number of volts set forth in column 4 of said schedule, and approximately 25 cycles per second frequency.

(*c*) At the expiration of three months' written notice, which may be given by the Corporations or any of them from time to time during the continuance of this agreement, to supply from time to time to the Corporations in blocks of not less than 1,000 horse power each, additional power until the total amount so supplied shall amount to 30,000 horse power.

(*d*) At the expiration of nine months' like notice, which may be given by the Corporations or any of them from time to time during the continuance of this agreement, to supply from time to time to the Corporations in blocks of not less than 1,000 horse power each, additional power until the total amount so supplied shall amount to 100,000 horse power.

(*e*) To use at all times first-class, modern, standard, commercial apparatus and plant and to exercise all due skill and diligence so as to secure the most perfect operation of the plant and apparatus of the Corporations.

In consideration of the premises and of the agreements herein set forth each of the Corporations for itself, and not one for the other, agrees with the Commission:—

2.—(*a*) Subject to the provisions of paragraph 2 (*g*) hereof, to pay the Commission for the quantities of power shown in column 2 of said schedule, or 40 per cent. less as a minimum, to be supplied at said date, and for such additional power supplied or held in reserve upon such notices, the price set forth in column 3 of said schedule in twelve monthly payments, in gold coin of the present standard of weight and fineness, and bills shall be rendered by the Commission on or before the fourth and paid by the Corporations on or before the fifteenth of each month. If any bill remains unpaid for 15 days, the Commission may, in addition to all other remedies and without notice, discontinue the supply of such power to the Corporations in default until said bill is paid. No such discontinuance shall relieve the Corporation in default from the performance of the covenants, provisions, and conditions herein contained. All payments in arrears shall bear interest at the legal rate.

(*b*) To take electric power exclusively from the Commission during the continuance of this agreement; provided, if the Commission is unable to supply said power as quickly as required, the Corporations may obtain the supply otherwise until the Commission has provided such supply, thereupon the Corporations shall immediately take from the Commission; and the Corporations may generate, store, or accumulate electric power for emergencies, or to keep down the peak

load of the power taken from the Commission; and nothing herein contained shall effect existing contracts between the Corporations and the other parties for a supply of electric power, but the Corporations shall determine said contracts at the earliest date possible.

(*c*) To pay, annually, interest at four per cent. per annum upon its proportionate part of the moneys expended by the Commission on capital account for the construction of the said line, transformer stations and other necessary works, shown, respectively, in column 6 of said schedule, subject to adjustment under paragraph 10.

(*d*) To pay an annual sum for its proportionate part of the cost of the construction of said line, stations and works, shown, respectively, in column 6 of said schedule, subject to adjustment under paragraph 10, so as to form in thirty years a sinking fund for the retirement of the securities to be issued by the Province of Ontario.

(*e*) To bear its proportionate part of the line loss and pay its proportionate part of the cost to operate, maintain, repair, renew and insure the said line, stations and works, shown, respectively, in column 7 of said schedule, subject to adjustment under paragraph 10.

(*f*) To keep, observe and perform the covenants, provisos and conditions set forth in said contracts, intended by the Commission and the Company to be kept and observed and performed by the Corporations.

(*g*) To pay for three-fourths of the power supplied and held in reserve at said date and upon said notices, whether the said power is taken or not, and when the greatest amount of power taken for twenty consecutive minutes in any month shall exceed three-fourths of the amount during such twenty consecutive minutes so supplied and held in reserve, to pay for this greater amount during that entire month. When the power factor of the greatest amount of power taken for said twenty minutes falls below 90 per cent., the Corporations shall pay 90 per cent. of said power divided by the power factor.

(*h*) To take no more power than the amount to be supplied and held in reserve at said date and upon said notices.

(*i*) To use at all times first-class, modern, standard, commercial apparatus and plant to be approved by the Commission.

(*j*) To exercise all due skill and diligence so as to secure the most perfect operation of the plant and apparatus of the Commission and the Company.

3. If as therein provided, the said contracts are continued until 19th December, 1939, this agreement shall remain in force until that date.

4. Said power shall be three phase, alternating, commercially continuous twenty-four hour power every day of the year except as provided in paragrph 6 hereof, and shall be measured by curve-drawing meters, subject to test as to accuracy by either party hereto.

5. The engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Corporations, and take records at all reasonable times on giving to the Corporation six hours' notice of the intention to make such inspection. The Corporations shall have a like right on giving a like notice to inspect the apparatus, plant and property of the Commission.

6. In case the Commission or the Company shall at any time or times be prevented from supplying said power, or any part thereof, or in case the Corporations shall at any time be prevented from taking said power, or any part thereof, by strike, lock-out, riot, fire, invasion, explosion, act of God or the King's enemies, or any other cause reasonably beyond their control, then the Commission shall not be bound to deliver such power during such time and the Corporations shall not be bound to pay the price of said power at Niagara Falls during such time, but the Corporations shall continue to make all other payments, but as soon as the cause of such interruption is removed the Commission shall without any delay supply said power as aforesaid and the Corporations shall take the same and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

7. If, and so often as, any interruption shall occur in the service of the Company due to any cause or causes, other than those provided for by the next preceding paragraph hereof, the Commission shall recover and pay to the Corporations as liquidated and ascertained damages and not by way of penalty, as follows:— For any interruption less than one hour double the amount payable for power which should have been supplied during the time of such interruption; and for any interruption of one hour or more, the amount payable for the power which should have been supplied during the time of such interruption and twelve times the last mentioned amount in addition thereto, and all moneys payable under this paragraph when the amount thereof is settled between the Commission and the Company may be deducted from any moneys payable by the Corporations to the Commission, but such right of deduction shall not in any case delay the said monthly payments.

8. The maintenance by the Commission of approximately the agreed voltage at approximately the agreed frequency at the sub-station in the limits of the Corporation shall constitute the supply of all power involved herein and the fulfilment of all operating obligations hereunder; and when voltage and frequency are so maintained, the amount of the power, its fluctuations, load factor, power factor, distribution as to phases, and all other electric characteristics and qualities are under the sole control of the Corporations, their agents, customers, apparatus, appliances and circuits.

9. In case any municipal corporation, or any person, firm or corporation which shall contract with the Commission or with any municipal corporation for a supply of power furnished to the Commission by the Company shall suffer damages by the act or neglect of the Company, and such municipal corporation, person, firm or corporation would, if the Company had made the said contracts directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such pro-

ceeding or bring such action for or on behalf of such municipal corporation, person, firm, or corporation, and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceeding or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

10. The Commission shall at least annually adjust and apportion the amounts payable by municipal corporations for such power and such interest, sinking fund, line loss, and cost of operating, maintaining, repairing, renewing and insuring the line and works.

11. If at any time, any other municipal corporation, or pursuant to said Act, any railway or distributing company or any other corporation or person, applies to the Commission for a supply of power, the Commission shall notify the applicant and the Corporations, parties hereto, in writing, of a time and place and hear all representations that may be made as to the terms and conditions for such supply.

Without discrimination in favor of the applicants as to the price to be paid, for equal quantities of power, the Commission may supply power upon such terms and conditions as may, having regard to the risk and expense incurred, and paid, and to be paid by the Corporations, parties hereto, appear equitable to the Commission, and are approved by the Lieutenant-Governor-in-Council.

No such application shall be granted if the said line is not adequate for such supply, or if the supply of the Corporations, parties hereto, will be thereby injuriously affected, and no power shall be supplied within the limits of a municipal corporation taking power from the Commission at the time of such application, without the written consent of such corporation.

In determining the quantity of power supplied to a municipal corporation, the quantity supplied by the Commission within the limits of the corporation to any applicant, other than a municipal corporation, shall be computed as part of the quantity supplied to such corporation, but such corporation shall not be liable to pay for the power so supplied, or otherwise in respect thereof. No power shall be supplied by any municipal corporation to any railway or distributing company, or any other corporation or person without the written consent of the Commission.

12. It is hereby declared that the Commission is to be a trustee of all property held by the Commission under this agreement for the Corporations and other municipal corporations supplied by the Commission, but the Commission shall be entitled to a lien upon said property for all moneys expended by the Commission under this agreement and not repaid. At the expiration of this agreement the Commission shall determine and adjust the rights of the Corporations and other municipal corporations, supplied by the Commission, having regard to the amounts paid by them, respectively, under the terms of this agreement, and such other considerations as may appear equitable to the Commission and are approved by the Lieutenant-Governor-in-Council.

13. Each of the Corporations agrees with the other:—

(*a*) To take electric power exclusively from the Commission during the continuance of this agreement, subject to the provisos above set forth in paragraph 2 (*b*).

(*b*) To co-operate, by all means in its power, at all times, with the Commission, to increase the quantity of power required from the Commission, and in all other respects to carry out the objects of this agreement and of the said Act.

14. If differences arise between the Corporations, the Commission may upon application fix a time and place to hear all representations that may be made by the parties and the Commission shall, in a summary manner, when possible, adjust such differences and such adjustment shall be final. The Commission shall have all the powers that may be conferred upon a Commissioner appointed under The Act respecting Enquiries concerning Public Matters.

This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

In witness whereof the COMMISSION and the CORPORATIONS have respectively, affixed their corporate Seals and the hands of their proper officers.

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

Commissioners

SCHEDULE.

Column 1	2	3	4	5	6	7
Name of Municipal Corporation.	Quantity of power applied for in H.P.	Maximum price of power at Niagara Falls.	No. of volts.	Estimate maximum cost of power ready for distribution in municipality.	Estimate proportionate part of cost to construct transmission line, transformer stations and works for nominally 30,000 H.P., with total capacity of 60,000 H.P.	Estimate proportionate part of line loss and of part cost to operate, maintain, repair, renew and insure transmission line, transformer stations and works for nominally 30,000 H.P., with total capacity of 60,000 H.P.
		$9 40 for power at 12,000 volts until 25,000 H.P. or more are taken, then $9.00 for all $10 40 for power at 60,000 volts until 25,000 H.P. or more are taken, then $10.00 for all. If power taken at higher voltage, price to be fixed by arbitration.	Number required by each corporation.			
				$ c.	$	$
Toronto	10,000			18 10	828,080	38,970
London	5,000			23 50	671,089	31,578
Guelph	2,500			24 00	347,420	16,350
Stratford	1,000			27 10	173,580	8,120
St. Thomas	1,500			26 50	244,140	11,490
Woodstock	1,200			23 00	155,350	7,310
Berlin	1,000			24 00	138,970	6,540
Galt	1,200			22 00	143,920	6,773
Hespeler	300			26 00	63,200	2,974
St. Mary's	500			29 50	95,677	4,502
Preston	600			23 50	80,530	3,789
Waterloo	685			24 50	98,460	4,630
New Hamburg	250			29 50	47,830	2,251
Ingersoll	500			24 00	69,485	3,270

Estimates for Municipalities during the year 1908.

The following additional estimates have been made and submitted by your Commissioners for prices of power, distribution, costs, etc:

WESTON: Estimate as to the cost of distributing power to Weston from the Toronto Transformer Station.

EASTERN EXTENSION ESTIMATE: Your Commissioners made an estimate of the cost of delivering power to the following towns in the amounts stated:

Oshawa	1,500 H. P.
Bowmanville	600 "
Port Hope, A	300 "
Port Hope, B	500 "
Cobourg	900 "

The system estimated upon consists of running two 110,000 volt lines from the high tension busbars in the Toronto station, or interswitching station near Toronto, to and through Oshawa, and terminating at Port Hope. The figures were made on the basis of an interswitching station being located at Oshawa, and a step-down transformer station distributing to Oshawa and Bowmanville, and a terminal station located at Port Hope, stepping down to a lower potential for distribution to Port Hope and Cobourg, the towns of Bowmanville and Cobourg to be supplied by two three phase circuits, operating at 13,200 volts, from the stations at Oshawa and Port Hope respectively.

TILLSONBURG: Estimates for an equipment for incandescent and street lighting, and the distribution of power to power consumers.

NORWICH: Estimates of the cost of power for Norwich and the cost of distribution to the consumers.

HAMILTON: Estimates were prepared covering the cost of the distribution of power and street lighting, also estimates as to the cost of placing all wires in the centre of the city underground. A great deal of time was spent by the Engineers in collecting data and information for the city of Hamilton.

BRANTFORD: A great deal of time was also spent on behalf of the city of Brantford estimating the cost of equipment for incandescent and street lighting, etc.

GALT: Estimates were prepared in connection with the cost of equipment for incandescent lighting, pumping and street lighting.

WINDSOR: The Engineers prepared estimates for the city of Windsor for a supply of 5,000, 10,000, 15,000 and 20,000 horse power. A lengthy report was also made on power conditions in Windsor, etc.

WESTERN MUNICIPALITIES: Estimates were made of the cost of the equipment and cost of power to the following municipalities:

Windsor, Walkerville, Sandwich	5,000 H. P.
Bothwell	225 "
Dresden	200 "
Chatham	600 "
Leamington	250 "
Essex	100 "
Ridgetown	250 "
Thamesville	150 "
Tilbury	200 "
Blenheim	200 "
Comber	200 "
Wallaceburg	500 "
Amherstburg	350 "
Kingsville	650 "

Hydraulic Work.

Reports on Water Powers for Municipalities.

Your Commissioners have during the year, in accordance with paragraph 11 of the Power Commission Act, examined and investigated water powers and privileges, and reported upon the value and capacity thereof, for various municipalities throughout the Province. The following is a list of water powers investigated and hydraulic reports made in connection with the same, acting upon resolutions passed by the various councils requesting the services of the Engineers.

Hydraulic Reports, 1908.

(1) Report prepared in compliance with the request of the Canadian Manufacturers' Association, outlining a method of collecting, tabulating and publishing accurate hydraulic data, in connection with the rivers of the Province of Ontario, describes the information necessary to be collected, scheme of organization, and estimate of capital investment and annual cost of administration.

(2) Report prepared for the Municipality of Massey, giving information as to the possibility of developing power on the Sable River, includes estimates of the cost of developing full capacity and half capacity on each of two power locations adjacent to the town.

(3) Report prepared for the Municipality of Bancroft, giving information as to the power possibilities of the York branch of the Madawaska River, and the power capacity of various power-sites in the vicinity. Also estimate giving the cost of developing power upon a site within the town.

(4) Report prepared for the Municipality of Renfrew, giving information as to the power capacity of various available sites upon the Bonnechere and Madawaska Rivers. Also an estimate giving the cost of developing a site within the town for municipal purposes.

(5) Report prepared for the Municipality of Blind River, giving information as to the possibility of developing power at various available sites on the Blind River. Gives estimates upon cost of developing full capacity and half capacity at White Falls and transmitting power to Blind River.

(6) Report prepared for the Municipality of Sault Ste. Marie in connection with the possibility of developing power at the Whitefish Channel. Outlines scheme for insuring continuous flow in channel, and discusses scheme of development and obstacles in the way of acquiring the property for power purposes.

(7) Report prepared for the Municipality of Almonte, giving information as to the power capacity and storage possibilities of the Mississippi River. Also giving estimates of cost of developing full capacity and half capacity at each of two available sites within the town for municipal purposes.

(8) Report prepared for the Municipality of Peterboro, giving information as to the power capacity of the Otonabee River, and discussing various available sites on the river, with a view to advising the city as to the best location for the establishment of a municipal plant. Also includes estimate of cost of development at Burleigh Falls and cost of transmitting power to Peterboro.

(9) Report prepared for the Municipality of Bruce Mines, giving information as to the power possibilities of the Mississauga River. Also an estimate giving cost of developing half capacity and full capacity at Squaw Chute, on the Mississauga, and transmitting power to Bruce Mines.

(10) Report prepared for the Municipality of North Bay, giving information as to power capacity of Smoky Falls, on the Sturgeon River. Also gives estimate of cost of developing full capacity and half capacity, and transmitting power to North Bay.

HYDROGRAPHIC SURVEY.

HON. ADAM BECK,

Chairman, Hydro-Electric Power Commission.

DEAR SIR.—Submitted, herewith, is a report, the purpose of which is to outline a method of dealing with the question brought up in the letter of the Secretary of the Canadian Manufacturers' Association dated March 12th, 1908, and addressed to the Premier; namely, a practical method whereby detailed and accurate hydraulic data, in connection with the water powers of the Province of Ontario, could be collected, tabulated and published in such a way as to be readily accessible to the general public; the same being accompanied by estimates of initial investment and annual cost of administration in connection with the various schemes, as outlined.

In the first place, the cost of administering such a scheme will vary directly with the refinements introduced into the engineering methods, and the degree of accuracy required in connection with work in the field. Also, if the information obtained is to have weight, the period of investigation must extend over a number of years, it being necessary to determine the time and amount of maximum average and minimum flow and to investigate and record the behaviour of the different streams under various conditions. It is evident, therefore, that the longer the period of time over which the investigation extends, the more reliable will be the information resulting therefrom.

Of the different schemes outlined, the first is the only one which approaches completeness, the rest being simply modifications of the first, which are to be recommended only because they appear cheaper.

Scheme No. 1.

This scheme is intended to cover the same territory as that covered by the five reports of the first Commission; namely, the whole of the Province of Ontario with the exception of the James Bay watershed.

For purposes of investigation this territory will be divided into the following:

District A—

To include the Niagara, Grand, Thames, Maitland and Saugeen Rivers with their tributaries.

District B—

To include the St. Lawrence, Rideau, Moira, Trent, Otonabee, Gananoque and Credit Rivers.

District C—

To include the Ottawa, Mississippi, Madawaska, Petewawa, Mattawa, Montreal and Blanche Rivers.

District D—

To include the Severn, Muskoka, Moon, Muskosh, Magnetawan, South, French and Sturgeon Rivers.

District E—

To include the Wahnapitae, Spanish, Vermilion, Onaping, Whitefish, Sable, Blind, Mississauga, Thessalon and St. Marys Rivers.

District F—

To include the Michipicoten, Magpie, Steel, Black, Nipigon, Current, Kaministiquia and Mattawin Rivers.

District G—

To include the Seine, Wabigoon, Pigeon, Rainy, English and Winnipeg Rivers.

Each of the above mentioned districts should be in charge of a hydrographer, who, with the help of an assistant, would look after all the work in the district assigned to him. Each hydrographer should be supplied with a current meter, an engineer's level, an aneroid, a compass, a hand-level, sounding rods, ropes, etc. A canoe will in some cases also be required.

To cover the Province thoroughly, at least 80 gauging stations should be established, from one to five stations being established in the watershed of each river included in the scheme. The distribution of these stations is as follows:—

District A—17 stations.	District B—12 stations.	District C—14 stations.
" D—13 "	" E—10 "	" F— 9 "
" G— 7 "		

During the open season the hydrographers would travel continually in their respective districts, visiting the various gauging stations in rotation and making determinations of flow as frequently as possible. During the winter, when gauging operations must necessarily become less frequent, spare time can be fully occupied in reconnaissance work, such as profiling river beds, computing storage areas, measuring heads, studying ice conditions, and making approximate surveys of sites for storage dams. This class of work can be more conveniently done during the winter, so that the time of the outdoor staff could be fully occupied throughout the year.

Water level gauges should be established at each gauging station to be read each time discharge measurements are to be taken. Permanent level gauges should also be established where it will be possible to obtain readings at least once a day, gauge readers being appointed for this purpose.

In addition to the purely hydraulic information, the investigation would not be complete without making a study of, and recording the climatic conditions in the watersheds of the various rivers. For this purpose a certain number of gauge recorders could be detailed, for an extra consideration, to make and record observations of rain and snow fall, wind velocity and temperature.

To cover the territory above described about 63 gauge recorders should be appointed, and 17 of these should be supplied with equipment for making weather reports.

The distribution of gauge recorders would be as follows:—

Section A—17 stations.	Section B—12 stations.	Section C—8 stations.
" D— 9 "	" E— 7 "	" F—6 "
" G— 4 "		

Of the combined weather and gauge recorders there would be

In Section A—3 stations.	Section B—3 stations.	Section C—3 stations.
" D—2 "	" E—2 "	" F—2 "
" G—2 "		

This scheme as outlined above, is designed to give reasonably full and complete information with regard to the rivers above specified. This information

will enable all the necessary calculations to be made with reference to annual precipitation, annual evaporation, available run-off, storage capacity, discharge phenomena, power capacity, etc. Sufficient data will also be available for estimating on the improvement of such rivers as the Grand and the Thames, which have been ruined by deforestation.

ESTIMATED CAPITAL COST OF SCHEME NO. 1.

Hydrographers instruments and outfits	$3,583
Cost of establishing gauging stations	2,400
" " level gauge	650
" " rating station	600
" " weather stations	1,275
Stationery, record books, etc.	150
Total	$8,408

ESTIMATED ANNUAL COST OF SCHEME NO. 1.

Salaries of engineering staff	$19,360
" gauge recorders	6,720
Maintenance and repairs on instruments, 10 per cent.	360
" " " gauging stations	430
Travelling expenses	8,000
Stationery and postage	150
Total	$35,020

Scheme No. 2.

In this instance the Province will be divided as follows:—

Section A—

To include the Niagara, Grand, Maitland, Saugeen, Thames, Severn and Credit Rivers.

Section B—

To include the St. Lawrence, Moira, Trent, Otonabee, Rideau, Moon, Muskosh, Muskoka, French, Magnetawan and South Rivers.

Section C—

To include the Ottawa, Mississippi, Madawaska, Petewawa, Mattawa, Montreal, Blanche, Sturgeon, Whitefish and Wahnapitae Rivers.

Section D—

To include the Spanish, Vermilion, Onaping, Sable, Blind, Mississauga, St. Marys, Michipicoten and Magpie Rivers.

Section E—

To include the Nipigon, Kaministiquia, Mattawin, Pigeon, Wabigoon, Rainy and Winnipeg Rivers.

Under this arrangement the districts covered by each hydrographer are enlarged, so that gauging will be less frequent. No gauge recorders have been employed in the territory west of Sudbury, the level gauges at the various

stations being read by the hydrographers at the time of measuring flow only. Also no provision is made for taking weather records in this case, and the present government records will be relied on for this class of information.

While this scheme will reduce the annual charges, it will also reduce the amount of information collected in a given time, so that there will be no ultimate saving, if the investigations are continued long enough to furnish data as copious and reliable as in the case of Scheme No. 1.

ESTIMATED CAPITAL COST OF SCHEME NO. 2.

Hydrographers' instruments and outfits	$2,640 00
Cost of establishing gauging stations	1,875 00
Cost of establishing level gauges	450 00
Cost of establishing rating stations	600 00
Stationery, record books, etc.	150 00
Total	$5,715 00

ESTIMATED ANNUAL COST OF SCHEME NO. 2.

Salaries of engineering and office staff	$14,300 00
Salaries of gauge readers	2,400 00
Maintenance and repairs on instruments, 10%	260 00
Maintenance and repairs on stations, 10%	230 00
Travelling expenses	6,000 00
Stationery and postage	150 00
Total	$23,340 00

Scheme No. 3.

In this case it is proposed to omit the Districts of Algoma, Thunder Bay and Rainy River, and for the present to confine their detailed investigations to the older parts of the province, the subdivision of districts being the same as in the case of Scheme No. 2. By dividing this territory into three districts, each in charge of a hydrographer and assistant, as before, it should be possible to get at least one gauging per month at each station in the district. Gauge recorders have been dispensed with entirely, and water level readings will be taken by the hydrographers only, as previously explained. Weather records have been dispensed with in this case also, and this scheme will represent about the minimum of outlay through which any results worth publishing can be obtained within a reasonable time.

ESTIMATED CAPITAL COST OF SCHEME NO. 3.

Hydrographers' instruments and outfits	$1,657 00
Cost of establishing gauging stations	1,650 00
Cost of establishing rating stations	600 00
Stationery, record books, etc.	100 00
Total	$4,007 00

ESTIMATED ANNUAL COST OF SCHEME NO. 3.

Salaries of engineering and office staff	$9,940 00
Maintenance and repairs on instruments	165 00
Maintenance and repairs on stations	160 00
Travelling expenses	4,800 00
Stationery and postage	100 00
Total	$15,166 00

The most important branch of work in connection with this scheme is the discharge measurement, and a sufficient sum has been provided in the foregoing estimates for the material and workmanship to establish permanent gauging stations where required.

These stations are of four general classes: bridge stations, cable stations, boat stations and triangulation stations.

Bridge stations are stations where gauging operations can be carried on over the railing of a bridge. Locations of this type can be found on such rivers as the Thames and Grand.

Cable stations are stations where soundings and velocity measurements are made from a travelling bucket suspended from a cable stretched across the stream. This method is used in the case of large non-navigable streams, of which a typical example is the west branch of the Winnipeg River at Kenora.

Both stations are established on rivers where sufficient accuracy can be attained by temporarily stretching a tagged rope across the stream and carrying on gauging operations from a boat or canoe. This is the most general method and is more or less applicable to all the rivers in the province with the exception of the larger boundary rivers.

The triangulation method is necessary only in the case of very large streams like the St. Lawrence, Niagara or Ottawa. In this case the location of soundings and velocity measurements is determined instrumentally by triangulation. The gauging of these large rivers will require extra precautions and additional staff, and the cost is not included in the foregoing estimates.

Water level gauges will be established at each gauging station for the purpose of maintaining the important relation between water level and discharge. Gauges from which daily records are to be made will be located where they can be most conveniently reached by the recorder, so as to consume as little of his time as possible and thus cut down expenses.

District topographers and gauge recorders will transmit their records and observations in the form of weekly reports to the Toronto office, where they will be classified and tabulated, and all calculations will be performed by the office staff.

It would seem advisable to have all this data on file at the Toronto office, where it would be accessible to the general public. Eventually, say in not less than four years, the results could be published from time to time in the form of detailed reports upon each important river in the Province. Reliable information presented in this manner would be of great value and would go far towards advertising the hydraulic resources of the Province of Ontario.

All of which is respectfully submitted.

CHIEF ENGINEER.

MASSEY.

Re Power for Municipality.

Power Requirements.

The market at present existing in the town is not of sufficient importance to warrant development on the locations available, and the report was asked for with a view to obtaining power which could be held out as an inducement for the establishment of manufacturing industries.

Source of Power.

The most convenient source of power for the municipality is the Sable River, which empties into the Spanish River close to the town. A number of good natural heads exist, two of the best of which are within a mile of the town.

This river is rather deficient in natural storage facilities, and the capacity for peak load storage at the power sites is also limited owing to lack of pondage, but the watershed of the river is of sufficient extent to make possible the development of considerable blocks of power under conditions of minimum flow.

Available Sites.

Of the available sites, the two best suited to the requirements of the municipality are Graveyard Chute and Spanish Chute, one mile and one-half of a mile respectively from the town. As regards pondage for peak load accommodation, there is nothing to choose between the two sites. The total available head at the Graveyard Chute is 55 feet, while that at Spanish Chute is not more than 43 feet, but to utilize the full head in the first case would require a much more complicated scheme of development than would be required at the Spanish Chute, where the scheme of development would be comparatively simple, and it will require comparative estimates to ascertain which development is the more favorable from a standpoint of economy.

Power Capacity.

The discharge of the Sable River is sufficient to produce about 20 continuous 24-hour horse power per foot of head under conditions of minimum flow. This amount of power was available at the time of inspection, but owing to the fact that the flow of the river is controlled by the lumber interests, during the time of the annual drive it is not at all certain that there will be enough surplus water, over and above that required for driving purposes, to produce the above mentioned capacity all the year round. Some additional investigation will be necessary during the progress of the drive to determine this.

Development.

The natural head at Graveyard Chute could be increased to 55 feet by placing suitable overflow dams in each channel and carrying a flume and penstock across the bend in the river to tailwater. Under these conditions, and assuming as above stated, a capacity of 20 horse power per foot of head, the full development would produce 1,100 horse power at the turbine shaft.

The natural head at the Spanish Chute could be very easily increased to 43 feet by means of a dam at the head of the chute. Under this head, and with the same assumption as before, as to minimum capacity per foot of head, the full development would produce 860 horse power at the turbine shaft.

As the existing market is small, an estimate based on present or immediate future demand would force the annual cost of power beyond reasonable limits. Two estimates will, therefore, be submitted for each development, one for full capacity and one for half capacity, the power to be delivered at the outskirts of the town and all losses allowed for in each case.

The capital costs for the full load estimates will include the construction cost of permanent works, and the cost of hydraulic and electrical equipment, all for full capacity. The annual charges in each case include depreciation and maintenance, interest or capital investment and operation and administration.

The half load estimates provide for permanent works for full capacity, but hydraulic and electric for half capacity only. Otherwise these estimates are figured along the same lines as those for full load, both as regards capital investment and annual charges. No spare equipment is provided in either case.

It may be said that the remarkable similarity of the figures in these two sets of estimates is merely a coincidence, as the estimates were worked out quite independently of each other, and have not been altered or adjusted in any way. On the showing of these estimates, the Spanish Chute appears to be the more favorable site on account of the shorter distance to town.

While this report is of an advisory nature only, it is based upon information which should be sufficiently reliable to form a safe estimate of the possibilities, in case the municipality should see fit to take definite action with regard to development.

Graveyard Chute.—Estimate No. 1—Full Capacity.

Provides for the delivery at the Power House switchboard of 1,000 horse power ready for local distribution in the Town of Massey.

Capital Investment.

Dam, Power House and permanent works	$18,750 00
Excavation and false work	7,000 00
Hydraulic equipment	8,000 00
Electrical equipment	21,750 00
	$55,500 00
Engineering and contingencies, 10%	5,550 00
	$61,050 00
Interest during construction, 3%	1,831 00
Total capital cost	$62,881 00

Annual Charges.

Dam, Power House and permanent works	$493 00
Hydraulic equipment	435 00
Electrical equipment	1,275 00
	$2,203 00
Engineering and contingencies, 10%	220 00
Annual interest on $63,000 at 5%	3,150 00
Sinking fund, 1.51%	951 00
Operation and administration	3,000 00
Total annual charges	$9,524 00

Cost of 1 H.P. to build on basis of 1,000 H.P. delivered, $63.00.
Annual cost of 1 H.P. on basis of 1,000 H.P. delivered, as above specified, $9.52.

Graveyard Chute.—Estimate No. 1—Half Capacity.

Provides for the delivery at the Power House switchboard of 500 horse power ready for local distribution in the Town of Massey.

Capital Investment

Dam, Power House and permanent works	$18,750 00
Excavation and false work	7,000 00
Hydraulic equipment	4,500 00
Electrical equipment	11,425 00
	$41,675 00
Engineering and contingencies, 10%	4,168 00
	$45,843 00
Interest during construction, 3%	1,375 00
Total capital cost	$47,218 00

Annual Charges.

Dam, Power House and permanent works	$493 00
Hydraulic equipment	245 00
Electrical equipment	668 00
	$1,406 00
Engineering and contingencies, 10%	141 00
Annual interest on $47,300 at 5%	2,365 00
Sinking fund, 1.51%	714 00
Operation and administration	2,500 00
Total annual charges	$7,126 00

Cost of 1 H.P. to build on basis of 500 H.P. delivered, $95.00.
Annual cost of 1 H.P. on basis of 500 H.P. delivered, as above specified, $14.25.

SPANISH CHUTE.—ESTIMATE NO. 2.—FULL CAPACITY.

Provides for the delivery at the Power House switchboard of 860 horse power ready for local distribution in the Town of Massey.

Capital Investment.

Dam, Power House and permanent works	$15,350 00
Excavation and false works	9,200 00
Hydraulic equipment	8,650 00
Electrical equipment	18,550 00
	$51,750 00
Engineering and contingencies, 10%	5,175 00
	$56,925 00
Interest during construction, 3%	1,708 00
Total capital cost	$58,633 00

Annual Charges.

Dam, Power House and permanent works	$356 00
Hydraulic equipment	468 00
Electrical equipment	1,083 00
	$1,907 00
Engineering and contingencies, 10%	191 00
Annual interest on $59,000 at 5%	2,950 00
Sinking fund, 1.51%	891 00
Operation and administration	2,500 00
Total annual charges	$8,439 00

Cost of 1 H.P. to build on basis of 860 H.P. delivered, $68.00.
Annual cost of 1 H.P. on basis of 860 H.P. delivered, as above specified, $9.82.

SPANISH CHUTE.— ESTIMATE NO. 2—HALF CAPACITY.

Provides for the delivery at the Power House switchboard of 430 horse-power ready for local distribution in the Town of Massey.

Capital Investment.

Dam, Power House and permanent works	$15,350 00
Excavation and false work	9,200 00
Hydraulic equipment	4,850 00
Electrical equipment	9,725 00
	$39,125 00
Engineering and contingencies, 10%	3,913 00
	$43,038 00
Interest during construction, 3%	1,291 00
Total capital cost	$44,329 00

Annual Charges.

Dam, Power House and permanent works	$356 00
Hydraulic equipment	263 00
Electrical equipment	566 00
	$1,185 00
Engineering and contingencies, 10%	119 00
Annual interest on $44,300 at 5%	2,215 00
Sinking fund, 1.51%	669 00
Operation and administration	2,000 00
	$6,188 00

Cost of 1 H.P. to build on basis of 430 H.P. delivered, $103.00.

Annual cost of 1 H.P. on basis of 430 H.P. delivered, as above specified, $14.40.

BANCROFT.

Re Power for the Municipality.

Power Requirements.

The market at present existing in this municipality is insignificant, and would not afford sufficient inducement in itself for extensive hydraulic development. This report will, therefore, be submitted for the purpose of indicating the amount of power available for the development of the mineral and timber resources of the surrounding territory; also the probable capital and annual cost of stated quantities of power developed at the site most convenient to the municipality.

Source of Power.

The source of power available for this municipality is the York branch of the Madawaska, which flows through the town. The watershed of this tributary has an area of about 400 square miles, and is well supplied with natural storage basins. In addition to this, the watershed embraces a considerable timbered area, and the stream derives a large portion of its flow from underground waters. These conditions tend to produce uniformity of flow, and in this respect the York branch is better suited for power purposes than most rivers of its class in the Province.

Available Sites.

A number of good natural heads exist on this river within easy transmission distance of the town, the most important of which are High Falls, Crooked Rapids, Lavellee's Rapids and the rapids adjacent to the town. While development is quite feasible at all these locations, the last mentioned is the one best suited to the town's requirements, both as regards power capacity and economy in development.

Power Capacity.

At the time of inspection the discharge of the York River was sufficient to produce at least 50 horse power per foot of head. It is not at all probable that this amount of power would be continuously available. However, in view of the favorable nature of the watershed, and the fact that the Baptiste Lake dam, which controls 15 square miles of storage area, is located not more than eight miles from the town, it would be reasonable to assume a minimum discharge of 250 second feet, which is equivalent to 23 horse power continuous 24-hour power per foot of head. It is to be understood, however, that an investigation of low-water conditions may cause this figure to be changed.

Using this figure as a basis, the town rapids would have a total minimum capacity of 500 horse power, High Falls 1,000 horse power, Crooked Rapids 800 horse power and Lavellee's Rapids 800 horse power, so that there is probably 3,000 horse power continuous 24-hour power within transmission distance of the town, which could be developed as the demand required.

Development.

By combining the present Rathbun dam with the rapids just below, an effective head of 22 feet could be obtained, and a proper scheme of development for full capacity would involve the replacing of the present dam by a more permanent structure and the building of a flume down the left bank of the stream between the dam and the power house site. The dam and flume would comprise the main feature of the development as regards first cost, and would also materially affect the annual cost of power.

As before mentioned, the existing market is small, and an estimate based on present demand would force the annual cost of power beyond reasonable limits. Two estimates will, therefore, be submitted, providing for the generation of certain specified quantities of power, the same to be delivered at the busbars ready for distribution.

The first estimate will be for full capacity, and will include construction, cost of permanent works, hydraulic and electrical equipment, an allowance for engineering, and contingencies and interest during construction. Annual charges will include depreciation and maintenance, interest on investment, and operation and administration.

The second estimate will provide permanent works and power house space for full capacity, but hydraulic and electrical equipment for direct current only. Otherwise the half-load estimate will be figured on the same basis as that for full load.

In order to obviate the necessity for installing a new distribution system for lighting, both estimates will provide for the installation of a direct current unit of sufficient capacity to handle the municipal lighting load for some time to come.

The permanent works are of concrete construction, the dam having concrete abutments, piers and headblock, and the flume is of the reinforced concrete type. The power house foundations are of concrete and steel, but the superstructure is of wood. No automatic governing apparatus has been installed.

Storage.

The facilities for artificial storage upon this river are unusually good, the principal controlling point being the Rathbun dam at the foot of Baptiste Lake. This dam at the present time undoubtedly has a very beneficial influence upon the river as regards uniformity of flow, and if the discharge through the dam could be controlled for power purposes exclusively, this influence would be still more marked. At the present time large quantities of water are wasted in taking out the spring drive, as there are no slides on the river.

The amount of annual precipitation over the watershed is seldom less than 30 inches, and of this 15 inches should be available for power purposes. The total available precipitation on the watershed (400 square miles) would then be about 14,000 million cubic feet. Assuming 15 square miles of area in Baptiste and a storage run-off of five feet, the reserve capacity of this reservoir would be 2,100 million cubic feet. This amount of water would supply 22 horse power per foot of head for 100 days, leaving 11,900 million cubic feet to be discharged naturally.

In conclusion, it is to be understood that the function of this report is advisory only, and while it gives a reasonable indication of the possibilities, no definite steps toward development should be taken until a certain amount of reliable hydraulic information has been obtained in connection with the river, and until a detailed survey of the power site has been made, from which it will be possible to prepare an accurate estimate.

ESTIMATE No. 1.

Provides for generation of full capacity, 500 H.P.

Capital Investment.

Dam, head works and Power House	$8,600 00
Excavation and false work	7,400 00
Hydraulic equipment	10,300 00
Electrical equipment	11,450 00
	$37,750 00
Engineering and contingencies, 10%	3,775 00
Interest during construction, 3%	1,246 00
Total capital investment	$42,771 00

Cost of 1 H.P. to build on basis of 500 H.P. delivered, $85.50.

Annual Charges.

Dam, head works and Power House	$261 00
Hydraulic equipment	425 00
Electrical equipment	652 00
	$1,338 00
Engineering and contingencies, 10%	134 00
	$1,472 00
Annual interest on $42,770 at 5%	2,139 00
Sinking fund, 1.51%	646 00
Operation and administration	2,800 00
Total annual charges	$7,057 00

Cost of 1 H.P. annually on basis of 500 H.P. delivered at switchboard, $14.12.

ESTIMATE No. 2.

Provides for generation of 150 H.P. direct current.

Capital Investment.

Dam, head works and Power House	$8,300 00
Excavation and false work	7,400 00
Hydraulic equipment	6,300 00
Electrical equipment	4,050 00
	$26,050 00
Engineering and contingencies, 10%	2,605 00
Interest during construction, 3%	860 00
Total capital investment	$29,515 00

Cost of 1 H.P. to build on basis of 150 H.P. delivered, $197.00.

Annual Charges.

Dam, head works and Power House	$213 00
Hydraulic equipment	225 00
Electrical equipment	224 00
	$662 00
Engineering and contingencies, 10%	66 00
Annual interest on $29,500 at 5%	1,475 00
Sinking fund, 1.51%	446 00
Operation and administration	2,500 00
Total annual charges	$5,149 00

Cost of 1 H.P. annually on basis of 150 H.P. delivered at switchboard, $34.33.

RENFREW.

Re Power for Municipality.

Power Requirements.

This report was solicited by the Town of Renfrew for the immediate purpose of obtaining advice as to the practicability of developing a small power within the municipality for operating the waterworks and street lighting systems. In addition to this, information was asked for in connection with several other waterpowers in the vicinity, with a view to future development.

The market at present existing in the town is fairly well supplied by existing developments, and in view of this fact the development of any large block of power by the municipality would not be a commercial proposition, unless there was definite assurance of the establishment of industries requiring an aggregate of 400 to 500 horse power.

The immediate need, as before mentioned, is in connection with the waterworks. The system is at present operated by means of a motor-driven turbine pump, the power for which is supplied by the Renfrew Power Company. This company, under present conditions, has only sufficient capacity to meet the increasing requirements of its private customers, and they are unwilling to renew the town contract, which expires in July next, under the present terms. It was therefore considered advisable for the town to seek some other means of supplying the necessary amount of power, and the discussion of this question is the main purpose of the report herewith submitted.

Sources of Power.

The most convenient source of power for the municipality is the Bonnechere River, which flows through the town. A number of good natural heads exist on this river, one of the best being within the Corporation limits, and two others are within easy transmission distance.

Under present natural conditions this river is capable of delivering about 15 horse power continuous 24-hour power per foot of head at extreme low water in the vicinity of Renfrew, and this figure could probably be doubled by artificial storage.

Another possible source of power for the town is the Madawaska, which in the neighborhood of Renfrew is capable of delivering about 80 horse power continuous 24-hour power per foot of head under low-water conditions.

Storage Possibilities.

The Bonnechere River is well supplied with natural storage basins, and the power users along the river would benefit very greatly by their development.

The topographical conditions are not such as to warrant extensive dam construction, the shores of the lakes being low at the outlets and also around the greater portion of their circumference. A number of settlers are located around these lakes, and the danger of interfering with private property appears to be the main obstacle in the way of utilizing them for storage.

The combined area of Round and Golden Lakes is at least 30 square miles and if the mean level of these lakes were raised only two feet by means of storage dams sufficient water would be impounded to produce double the present low water flow for a period of three months. The power users along this river could profitably invest a large sum of money in acquiring rights from any settlers whose property would be in any way affected by the construction of storage dams.

Available Sites.

Of the power sites available for development, the most important are the First Chute on the Bonnechere, eight miles below Renfrew; the Fourth Chute on the Bonnechere, 16 miles above Renfrew; the Burnstown Rapids on the Madawaska, eight miles from Renfrew; and the upper portion of the Second (?) Chute on the Bonnechere, within the Renfrew Corporation Limits, hereinafter called the Hough Property.

Power Capacity.

The minimum available head at the First Chute may be taken at 32 feet. With this head and a power capacity of 15 horse power per foot head this site should be able to develop 500 horse power continuous power. A wooden dam about 14 years old is at present located at the head of the chute, which might serve temporarily, but in the event of full development it would have to be torn out and replaced by a more permanent structure.

The head available at the Fourth Chute is about 46 feet, and the flow will be slightly less than in the case of the First Chute. This site, fully developed, would have a capacity of about 600 horse power continuous power. There is a concrete dam on the property, which probably could be utilized in the case of full development.

In the case of the Burnstown site no concentrated head exists, and for development it would be necessary to create an artificial head by means of a dam, and

the capacity of the site would be limited practically by the capital investment applied to the dam construction, which would be the main feature of the development, the river channel being 300 to 400 feet wide at this point. A 10-foot dam at this point would make about 800 horse power available, a 15-foot dam 1,200 horse power, and so on.

With regard to the three locations above specified, it may be said that development is structurally feasible in each case, but the economic features of the problem are not so favorable. If an unsupplied demand for, say, 500 horse power existed in the town at the present time, the full development of either the First or Fourth Chutes could be safely recommended. This, however, is not the case as regards the power market, and either of the above propositions would seem at present to be of a rather too speculative nature for the municipality to handle with safety.

The available low-water head on the Hough property may be figured at 10 feet, and the high-water head at about 7 feet. In extreme low water this site would then be capable of developing 150 horse power continuous power. In high-water periods 50 horse power per foot of head could be relied on, so that the high-water capacity of the site would be at least 350 horse power.

At the present time the waterworks system uses 50 horse power under normal operating conditions and the arc light system 30 horse power. It is evident, therefore, that a plant of 150 horse power minimum capacity will meet the town's requirements for a long time to come. Also, the fact that the Hough property is in the Corporation limits will tend to make the capital and operating charges a minimum. The development of any of the more remote locations would mean trebling the investment, and doubling or trebling the annual charges, permanent works being installed for a capacity which would probably not be utilized for years.

In view of existing circumstances, the development of the 10-foot head on the Hough property would appear to be the only proposition worth considering in detail, and on this assumption the following estimate is submitted.

Scheme of Development.

On account of the low fluctuating head, it will be necessary to install the hydraulic plant in an open flume, with two single vertical shaft wheels geared to a jack shaft, and the generator driven therefrom by means of a belt. For speed regulation under varying head it may be necessary to install double-faced pulleys on shaft and generator, leaving sufficient space on the slide rails to adjust the belt for changes in speed, in case the gateage of the wheels proves unable to handle it.

It has been considered advisable to install a generator for the full capacity of the plant, and to operate the arc system direct, and the waterworks by means of a motor pumping set, as at present. Provision will also be made for a belt drive, so that in case of accident to the electrical apparatus the pump can be driven direct from the wheels. To further insure the continuity of the water service, the town should install an emergency line and switching apparatus, to allow of temporary connection to the Renfrew Power Company's plant in case of accident to the wheels, or during repairs. In this way it should be possible to dispense with the steam plant, as required at present by the underwriters.

The following estimate is based on the assumption that a 10-foot head will be available at low-water, and that tail-water will rise not more than four feet at flood-time, with a corresponding rise of one to two feet in head-water, making seven to eight feet of head available in high water.

Estimates.

The attached estimate includes the construction of a tight concrete dam in place of the one already existing on the property; also a concrete head race and power house, with space for one 100 kilowatt alternating current generator and a turbine pump unit. The hydraulic equipment will consist of two vertical shaft wheels each of 80 horse power rating under a 10-foot head, these being arranged to operate either separately or in parallel. An approximate sum has also been included to cover changes in the piping system.

The total capital investment includes cost of permanent works, hydraulic, electrical and pumping apparatus, an allowance for engineering, and contingencies and interest during construction. Annual charges include depreciation and maintenance, interest on investment, sinking fund, and operation and administration.

It is to be noted that this estimate is of a preliminary nature only, as there was not sufficient data available for an accurate estimate. It is believed, however, that the figures herewith submitted are sufficiently close to furnish a safe and reasonable estimate of the obligations the town will assume should the project take definite shape.

ESTIMATE.

Dam, head work and Power House	$6,000 00	$120 00
Hydraulic equipment	2,800 00	140 00
Electrical equipment	3,900 00	234 00
Pumping equipment	2,500 00	150 00
Excavation and false work	2,900 00	....
Alterations in piping system (say)	2,500 00	....
	$20,600 00	$644 00
Engineering and contingencies, 10%	2,060 00	....
Interest during construction, 2½%	515 00	....
Annual interest, 5%	....	1,159 00
Sinking fund, 1.51% (30 years)	....	351 00
Operation	....	1,000 00
Grand total	$23,175 00	$3,154 00

The above totals would apply at present to a capacity of about 80 horse power, but they would not be appreciably greater for the full-rated capacity of 150 horse power, so that the annual cost per horse power would decrease directly as the lighting and water services expanded.

In the above estimate not more than half of the total annual charges should apply to the waterworks portion of the power plant. This being the case the annual charges on the water system for power amount to $1,577 per year. Add to this $6,220 for the present annual charges on waterworks, after deducting the cost of fuel, and the sum of $7,797 is obtained for the total annual charges on the waterworks system. Against this may be placed a total revenue of $11,000, which is a safe estimate for the year ending December 31st, 1908.

It is to be noted that this estimate does not include the cost of the privilege, which had not been obtained at the time of investigation. The increase in capital and annual charges due to this can be easily calculated.

Toronto, December 17th, 1908.

Blind River.

Re Power for Municipality.

Power Requirements.

The market at present existing in the town is not of sufficient importance to warrant development on the locations available, and the report was asked for with a view to obtaining power prices which could be held out as an inducement for the establishment of manufacturing industries.

Source of Power.

The natural source of power for the municipality is the Blind River, upon which are several good sites for development within easy transmission distance. This river is remarkable in that its natural storage capacity is very large in proportion to its drainage area. This has a tendency to produce a more uniform flow than is usual among the smaller rivers along the north shore, and adds very materially to its usefulness as a source of power.

Available Sites.

The two available sites on the river best suited to the requirements of the town are Cataract Falls and White Falls, six and seven miles respectively from the town. The site at Cataract Falls has the advantage of being probably a mile nearer the town and has also good facilities for peak load storage, as it is just at the foot of Cataract Lake. The natural head is about 23 feet.

At the White Falls site, while the facilities for peak load storage are not remarkable, there is a natural head of 55 feet, which more than offsets this disadvantage as compared with Cataract Falls. Moreover the topographical features of the White Falls site are such as to allow of easy development. The site can be reached conveniently in the winter by means of the winter road and in summer a tug of 8-foot draught can deliver material within a mile and a half of the power site. This will influence the construction costs very materially.

Power Capacity.

At the time of inspection the discharge at the White Falls was sufficient to produce about 9.5 continuous 24-hour horse power per foot of head. The river on this occasion was said to be at its lowest stage, but owing to the fact that the discharge of the river and the storage of the upper lakes is controlled by a Slide and Boom Company, it is not at all certain that water sufficient to produce this amount of power will be available the year round, over and above the quantity required for driving purposes. This point will require further investigation during the summer while driving operations are in progress, but in the meantime it has been agreed to submit an estimate based on the capacity of the site as determined at the time of inspection.

Development.

The natural head at White Falls could be increased to 65 feet by the construction of suitable headworks at the crest of the fall, and assuming, as above stated, a capacity of 9.5 horse power per foot of head, the full development would produce 620 horse power at the turbine shaft.

As the existing market is small, an estimate based on the present demand would force the annual cost of power beyond commercial limits. Two estimates will therefore be submitted, one based on the assumed delivery of full capacity, all losses being deducted, and the other based on the delivery of half capacity under similar conditions.

The capital cost in the first estimate includes the construction cost of permanent works, cost of hydraulic and electrical equipment, transmission line and step-down transformation, all for full capacity; also a percentage for contingencies and interest during construction. Annual charges include depreciation and maintenance, interest on capital investment and operation and administration.

The second estimate provides permanent works and transmission line for full capacity, but hydraulic, electric and sub-station equipment for half capacity only. Otherwise this estimate is figured along the same basis as the first. No spare generating equipment is provided for in either case.

While this report is only of an advisory nature, it is based upon information which is sufficiently reliable to give a safe estimate of the possibilities, should the municipality see fit to take definite action with regard to development.

ESTIMATE No. 1.

Provides for the net delivery in Blind River of 550 H.P.

Capital Investment.

Permanent works	$18,500 00
Excavation and false work	7,000 00
Hydraulic equipment	9,050 00
Electrical equipment	11,550 00
Transmission equipment	12,270 00
Step-down transformation	11,730 00
	$70,100 00
Engineering and contingencies, 10%	7,010 00
Interest during construction, 2½%	1,927 00
Total capital investment	$79,037 00

Cost of 1 H.P. to build on basis of 550 H.P. delivered, $144.00.

Annual Charges.

Permanent works	$355 00
Hydraulic equipment	500 00
Electrical equipment	654 00
Transmission equipment	772 00
Step-down transformation	560 00
Annual interest on $82,000 at 4½%	3,690 00
Operation and administration	5,500 00
Total annual charges	$12,031 00

Total annual cost of 1 H.P. at low tension busbars (220 volts) of Blind River sub-station on basis of 550 H.P. delivered, $21.80.

ESTIMATE No. 2.

Provides for the net delivery in Blind River of 280 H.P.

Capital Investment.

Permanent works	$17,800 00
Excavation and false work	7,000 00
Hydraulic equipment	5,550 00
Electrical equipment	6,600 00
Transmission equipment	8,900 00
Step-down transformation	8,655 00
	$54,505 00
Engineering and contingencies, 10%	5,450 00
Interest during construction, 2½%	1,498 00
Total capital investment	$61,453 00

Cost of 1 H.P. to build on basis of 280 H.P. delivered, $219.00.

Annual Charges.

Permanent works	$348 00
Hydraulic equipment	315 00
Electrical equipment	473 00
Transmission equipment	577 00
Step-down transformation	380 00
Annual interest on $61,500 at 4½%	2,770 00
Operation and administration	3,500 00
	$8,363 00

Total annual cost of 1 H.P. at low tension busbars (220 volts) of Blind River sub-station on basis of 280 H.P. delivered, $29.90.

SAULT STE. MARIE POWER DEVELOPMENT AT WHITEFISH ISLAND.

This report is submitted in accordance with the request of the municipality of Sault Ste. Marie, and deals with the possibility of developing the water power of the Whitefish Channel for the municipal needs of Steelton and the Canadian Soo.

The proposed site for development is located on a side channel between Whitefish Island and the main land, and was partially developed by Ryan & Haney for construction purposes during the building of the Canadian lock. The head-works built by them are still in existence, and as they are built upon the most favorable site, a portion could be utilized for the projected new development.

In view of the market possibilities in these two municipalities, it would be very poor policy to install permanent works for anything less than the maximum power capacity of the site, and this would entail the construction of a dam capable of handling the discharge of the channel under maximum conditions of flow. To accomplish this, the present dam should be torn out and replaced by one of concrete construction, and if deemed necessary or advisable the existing corewalls on either side of the channel could be raised or lengthened to meet new conditions. No detailed surveys of this site are at present available, upon which to base an estimate for the cost of development. The reliability of such an estimate would, in any case, be largely discounted, owing to uncertainty with regard to the

available supply of water, and while the topographical features of the site are sufficiently favorable, the main point is to devise a method by means of which the natural flow of the Whitefish Channel may be restored and maintained.

In the Lake Superior Power Company's Charter is a clause designed to hold them responsible to both Federal Governments for the level of the water in the locks, which must at all times be held at or above a certain specified elevation. There are at present five channels through which the waters of Lake Superior can discharge, namely: The natural channel of St. Mary River, the American lock, the Canadian lock, the American Power Canal and the Canadian Power Canal. It is evident that when these channels are discharging freely, a large quantity of water in excess of the natural discharge is being drawn from Lake Superior, with a consequent reduction of water level in the locks. For this reason, the American authorities during the past winter, ordered half the wheels in the American plant to be shut down, at a loss to the company said to be in the neighborhood of $8,000 per month. If these plants are to be kept operating at full load without detriment to the navigation interests, the free discharge of the main channel must be curtailed in such a manner as to compensate for the water drawn from Lake Superior by the artificial channels which feed the power plants. With this object in view, the construction of a compensating wing-dam has been commenced on the Canadian shore about 200 feet above the railway bridge. The two channels between the small islands have been blocked by the railway embankment, and the permanent works of the wing-dam extend from the extremity of this fill.

The permanent work as completed to date consists only of three sluice-ways with masonry wing-walls and piers, but there is no doubt that the experience of last winter will cause the Company to push on the extension of this dam with all possible speed.

In this connection it is important to note the effect the extension of this dam will have on the flow of water through the Whitefish Channel.

It will be seen from the plan that a large portion of the natural supply for this channel has been cut off by the railway embankment, and also that the wing-dam as it exists at present has a tendency to form back-water at the head of the channel. It is evident that the more the wing-dam is extended the more pronounced will become this back-water action, until ultimately the channel will become practically useless for power purposes, unless some remedial action is taken.

To preserve this channel it will be necessary either to reopen the old channel through the C.P.R. embankment, or to make arrangements with the Lake Superior Corporation whereby a continuous discharge, sufficient to restore the natural flow in the Whitefish Channel, will be drawn from the wing-dam sluices. Once this is done the minimum power capacity of the channel could be augmented, at the option of the municipalities, by throwing out a gathering-dam from the head of the island as indicated on the plan.

It is important to note that the foregoing has been based upon the assumption that the municipalities will be able to procure by lease or purchase, sufficient land on either side of the channel for the establishment of the permanent works. The property which it would be necessary to procure is substantially as indicated on the plan, namely, the strip of Crown Lands on the main shore and enough of Whitefish Island to allow the placing of the dam abutment and wing-wall.

A certain amount of flooding along the island shore will be unavoidable, even in the case of partial development, so that it will be necessary to acquire riparian privileges along the entire inner shore of the island.

Any scheme to develop power on this site independent of the Whitefish Island property and the riparian rights connected therewith, does not appear commercially feasible; first, because the amount of power obtained would be inadequate, and second, on account of the largely augmented capital expenditure which would be necessary in order to divert any portion of the channel's flow without injury or interference in connection with the said island.

To sum up, nothing but the full power capacity of the site could be safely considered as sufficient to supply the present and probable future municipal requirements of Sault Ste. Marie and Steelton, and if it is possible to acquire reasonably, by purchase or otherwise, the necessary property on both sides of the channel, the development for full capacity, as described above, is strongly to be recommended. In any case, it would be impossible to develop power on this site in any way or in any quantity without raising or lowering the water along the inner shore of the island, thus coming into conflict with interests controlling it.

The situation with regard to development rights on the property appears rather complicated. Whitefish Island, which belonged originally to the Dominion Government, is now held under patent by the Algoma Central Railway, the alleged intention being to establish a railway terminal thereon. In this event, it is highly probable that an earth fill will be carried across the head of the channel between the mainland and the upper end of the island, leaving the channel dry.

With regard to claims against this property, it should be noted that in the year 1900 an arbitration took place between the late Government and Messrs. Ryan & Haney to fix the value of the improvements made upon the power site by this firm. The value was fixed at $24,031.24, and the intention of the Government was that any purchaser of this power should be compelled to pay this sum to Ryan & Haney, the power being, therefore, practically mortgaged to this extent. The legal points of the case are not properly within the scope of this report and the above information is included simply to make the general aspect of the case clearer, and before any further steps are taken in connection with the hydraulic features of the problem, the validity of the Ryan & Haney claim, and the extent to which the municipalities would become involved with the Algoma Central interests in the event of development, should be thoroughly investigated.

For this purpose it would be advisable to obtain information on the following points:

(1) The waters of the St. Marys River, a navigable international stream, being under Federal control, are the waters of the Whitefish Canal, a subsidiary channel, also under Federal control. In other words, does the natural bed of the St. Marys River extend from mainland to mainland, Whitefiesh Island being simply an island in the bed of main stream, the water surrounding it being all under Federal control?

(2) If the waters of the Whitefish Channel, as a subsidiary channel, are not under Federal control, what are the legal rights of the riparian owners, viz., the Province of Ontario and the Algoma Central Railway?

To conclude, if by any reasonable means a clear title to the property may be acquired, and if the necessary steps can be taken to insure a permanent natural flow in the channel, the proposition is one which the municipalities can handle with safety and profit.

August 20th, 1908.

ALMONTE, RE POWER FOR MUNICIPALITY.

Source of Power.

The source of power available for Almonte is the Mississippi River, which divides into two main channels, within the corporation limits. The right channel is developed to its full capacity by the Almonte Woollen Mills Co., and the left channel, which carries the larger portion of the flow, is only partially developed, heads of from 8 to 25 feet being utilized at the head and foot of the main fall. The municipal lighting plant is located at the head of the fall, operating at 25-foot head.

Local Conditions.

The natural topographical conditions in the neighborhood of the power site are such as to make possible the development of the full natural head, and the utilization of the full flow of the river in an efficient and economical manner, but unfortunately, these conditions are discounted by reason of individual water privileges which have been developed for comparatively small heads. The wooden dam at the head of the falls, though covered with ice and snow at the time of inspection, appeared to be in a very dilapidated condition and is doubtless responsible for a serious waste through leakage, during periods of low water. All things considered, the proper course would undoubtedly be for the town to take over the individual privileges at present existing, develop the power to its full capacity with new equipment throughout, and return to the owners the electrical equivalent of the power they are at present using, at a cost which would not exceed their present annual charges. Owing to the higher efficiency of a central plant the town would be able to supply the required amount of power to these customers with a much smaller amount of hydraulic energy than they are themselves using at the present time.

Natural Characteristics.

The natural discharge of the Mississippi River at Almonte is estimated to be not less than 300 second feet during periods of low water. Natural conditions at the head-waters of the river are such as to afford good facilities for artificial storage. The present low water flow could probably be increased 75 per cent. by placing dams at the outlets of some of the larger lakes, and the future will doubtless see some action taken along this line. This report, however, will deal only with conditions as they are, both as regards the natural characteristics of the river and in connection with available sites for the development of power.

Municipal Development, Existing and Proposed.

At present the town of Almonte operates a small plant at the head of the falls, the average head being about 25 feet. This plant has a rated electrical capacity of 175 kilowatts, but owing to the poor arrangement of the plant, and the inefficient installation of the hydraulic equipment, the maximum load obtainable on the switchboard does not exceed 125 kilowatts, this output being entirely inadequate to meet the maximum requirements of the connected load. If the present plant were capable of operating to the limit of its rated capacity, it could, no doubt, hold the present load without trouble, but there would be little or no capacity on reserve for a future increase.

Leaving out of consideration altogether the supply of power for manufacturing purposes, a town of Almonte's class should quite reasonably have 300 kilowatts of installed electrical capacity (for which 500 hydraulic horse power would be required) available for lighting and pumping service. It is to be noted also that this statement makes no allowance for any marked increase in population or industrial activity.

Available Power Sites.

In addition to the site of the present plant the town has an opportunity to purchase two other locations in the immediate vicinity. One location would admit of a power house being placed about 200 feet down stream from the present plant, and on the same side of the stream. The power house in this case would be placed just below the present stone highway bridge and the water would be carried to the penstocks through a canal or covered flume from the intake of the present plant.

In the second case the power house would be located on the other side of the stream, and within reach of the lower tail-water basin, locally known as Grenville's Bay, the full natural head being thus utilized. To carry water to the wheels it will be necessary to construct a canal or flume, somewhat longer than in the previous case, from the intake of the present plant to a point about 100 feet below the highway bridge. From this point it will be necessary to carry a penstock across the stream on a single concrete arch span to reach the wheels. If an open canal is used, it will probably be necessary in both cases to line it throughout with concrete, owing to the seamy nature of the rock.

Comparison of Capacities.

The following statements are based on the assumption that the low-water discharge of the river is confined to the left channel of the river. This being the case, and assuming also that the town is entitled to half the water, there will be a discharge of 150 second feet available for municipal purposes during the low-water period. This is equivalent to 13.6 horse power, continuous power per foot of head at the turbine shaft.

The proposed installation at the bridge would allow the use of 30 feet natural head. The plant would then have a capacity of 400 hydraulic horse power. It would thus appear that this plant would not have sufficient capacity to meet the ultimate municipal demand, as estimated, though it would probably be sufficient for some time to come.

The second scheme involves the utilization of the full natural head, the average value of which may be safely taken at 50 feet. A plant operating under this head would produce about 680 hydraulic horse power. Under existing conditions this is the maximum amount of power available for the municipality at estimated low water.

Estimates.

In accordance with the wishes of the Light Commissioners, two estimates have been prepared, one for each of the schemes above described. An effort has been made in these estimates to keep the capital investment within limits laid down by the Commissioners, and while either scheme is quite feasible, both structurally and commercially, it should be pointed out that they are not entirely in accordance with the ideas of the Power Commissioners' Engineer, considering the problem from an engineering standpoint. (See section 2 of this report.)

The plants estimated on have provision made in both cases for the ultimate installation of up-to-date alternating-current equipment, but for the present it is assumed that the direct-current equipment in the present power house will be used. This will result in a temporary saving, not only as regards the actual equipment, but in connection with the distribution system, which would require re-arrangement to accommodate alternating current. On the other hand, the plant under these conditions, will operate at a much reduced efficiency, as compared with that of new and up-to-date equipment, and there will be a much greater liability to interruption of service. It has also been necessary to allow considerably more power-house space for the belted machinery than would be necessary for direct connected units. For this reason the power houses in both estimates have permanent foundations only, the superstructures being built of wood in each case.

The estimate for the 30-foot head provides for the installation of one 400 horse power wheel to be ultimately connected to one 250 kilowatt three phase 60 cycle generator. The estimate for 50-foot head provides for a canal, penstock and power house for the full capacity of 680 horse power, and for the preliminary installation of one 350 horse power wheel, to be ultimately direct connected to a 200 kilowatt three phase 60 cycle generator. As before stated both estimates provide belts and shafting for the temporary connection of the present direct-current equipment, which consists of two 30 kilowatt Edison Type, and two 55 kilowatt Canadian General generators of later design.

In conclusion, it should be distinctly understood that these estimates are not working estimates, the function of the report as a whole being purely advisory, and before any definite policy is decided upon, the services of a competent engineer should be secured to make detailed surveys. An estimate based on these surveys will then fully indicate whether or not the project is one which the municipality can handle with safety and profit.

ESTIMATE No. 1.

Head	30 ft.
Minimum capacity, 24 hr. power	400 H.P.
Installed hydraulic capacity	400 H.P.
Ultimate electrical capacity	250 K.W.
Present electrical capacity	175 K.W.
Output at switchboard, assuming 85% efficiency of old apparatus—149 K.W.	200 H.P.

Provides for concrete lined canal with stop-log gate at each end, concrete turbine and draft-tube chamber and bulkhead; concrete power house foundations with wooden superstructure and hand regulated hydraulic equipment necessary for the generation of 400 horse power. Allowance also made for all temporary work and installation of old machinery.

Capital Costs.

Mechanical equipment	$3,300 00
Head works	5,400 00
Power House, including foundations and turbine setting	2,600 00
Excavation for canal	1,350 00
Cost of privilege	1,000 00
	$13,650 00
Engineering and contingencies, 10%	1,365 00
Total	$15,000 00

Annual Charges.

Mechanical equipment	$150 00
Incidental repairs on electrical equipment	200 00
Power House and permanent works	138 00
	$488 00
Engineering and contingencies, 10%	49 00
Interest on $15,000 at 5%	750 00
Operation and administration	2,500 00
Total annual charges	$3,787 00

ESTIMATE No. 2.

Head	50 ft.
Minimum capacity, 24-hr. power	680 H.P.
Present hydraulic capacity to be installed	350 H.P.
Future electrical preliminary capacity	200 K.W.
Present electrical capacity installed	175 K.W.
Output at switchboard, assuming 85% efficiency of old apparatus—149 K.W.	200 H.P.

Provides for concrete lined canal, and penstock for full ultimate capacity. Complete hand-regulated hydraulic equipment for initial capacity of 350 H.P.; concrete power house foundations with wooden superstructure, and allowance for improving tail race, temporary work and installation of old machinery.

Capital Costs.

Mechanical equipment	$2,500 00
Head works	6,900 00
Power House, including foundations	3,760 00
Penstock, setting and accessories	6,000 00
Excavation and improvement of site	1,000 00
Cost of privilege	5,500 00
	$25,660 00
Engineering and contingencies, 10%	2,566 00
	$28,226 00

Annual Charges.

Mechanical equipment	$110 00
Incidental repairs on electrical equipment	200 00
Power House, penstock and permanent works	310 00
	$620 00
Engineering and contingencies, 10%	62 00
Interest on $28,500 at 5%	1,425 00
Operation and administration	2,550 00
	$4,657 00

SUMMARY.

Estimate No. 1.

Estimated capital cost, $15,000.
" annual charges, $3,800.
" cap. cost based on capacity of 250 K.W., $68.00 per H.P.
" " " " " " 149 " 75.00 " "
" annual cost based on " " 250 " 12.00 " "
" " " " " " 149 " 19.00 " "

Estimate No. 2.

Estimated capital cost, $28,500.
" annual charges, $4,600.
" cap. cost based on initial capacity of 200 K.W., $125.00 per H.P.
" " " " " " 149 " 142.00 " "
" annual cost based on " " 200 " 17.50 " "

NOTE.—Neither estimate takes into consideration the construction of a new dam at the head of the falls. Owing to the leaky nature of the present structure it is possible that the low-water flow of the river may not suffice to divert 150 sec. ft. into the intake of the municipal plant after leakage has been allowed for. The cost of a new dam would, of course, be borne by the interests operating on that level.

TORONTO, Jan. 15th, 1908.

PETERBORO.

In accordance with a resolution passed by the Council of the city of Peterboro, presented herewith, is a report concerning the question of an additional supply of power for the city of Peterboro from Ottonabee River.

After careful investigation, Burleigh Falls is recommended as the most feasible development for the needs of Peterboro. All available sites were considered, but Burleigh Falls is without doubt best suited for the needs of this city.

The question resolves itself into the consideration of two power sites, viz., Burleigh Falls, 22 miles from Peterboro, and Auburn Mills, on the outskirts of the town. The other locations examined were not sufficiently important to warrant discussion.

Water Supply.

Taking into account the effect of the locks and regulating dams of the Trent Valley Canal System, it would be very safe to assume the flow at Burleigh Falls as equivalent to 95 horse power per foot of head under minimum conditions. At Auburn the minimum flow would be so increased to make 100 horse power per foot of head a safe estimate. The location at Auburn would also have the advantage of the storage facilities at Jack's Lake, which is said to have an area equal to that of Stoney Lake, and could be raised ten feet above its natural level at comparatively small expense. At the present speaking, Burleigh Falls has a great advantage over the Auburn site in that the storage facilities of Lovesick Lake afford greater scope for load factor accommodation than will ever be possible at Auburn, but it is important to note that in the event of through navigation on the Trent Valley Canal being established, the power interests will be subservient to those of navigation through open season. This being the case, the power interests would be limited to the natural flow of the river as controlled and influenced by the operation of the canal. Consequently, although sufficient water could be drawn off Lovesick Lake to satisfy daily peak load demands without material change in its normal level, the same thing could be done at Auburn with the aid of the waterworks dam. Under the above conditions, both locations would be on a par as regards regulation, while the Auburn site would have the advantage of a larger drainage area, including the storage possibilities of Jack's Lake.

Available Head.

The present head at the Auburn dam is about 13 feet. By increasing the tail-water conditions, this could probably be increased to about 16 feet. The crest of the dam could be raised at least three feet without excessive land damages, as the length of the dam would allow of sufficient sluice and spill-way discharge area to take care of flood water. The fact that it would be necessary to keep the head-water level constant would result in a reduction of head during periods of high water. During the spring floods this would be a serious disadvantage, to obviate which it would be necessary to install reserve turbine capacity in the power house.

It is to be noted that of the 19 feet obtainable as described above, 3 feet will be gained at the expense of the waterworks dam, which is half a mile up stream.

At Burleigh the normal head will be about 22 feet, with a possibility of its being increased to 26 feet. This is due to the fact that in the event of through navigation for vessels of 9 feet draught being established on the Trent Valley Canal, the lock sills at Burleigh will be lowered, and at the same time the water level in Lovesick Lake will be raised about 4 feet to the level of Deer Bay, thus drowning out Lovesick Lock. Owing to the large amount of work to be done on the canal between Trenton and Peterboro, nothing will be done at Burleigh for at least four years, so that at present 22 feet only can be counted upon. The head at this location will be comparatively constant owing to the canal regulation, having in this an advantage over the Auburn site.

Topographical Conditions.

The topographical conditions at Auburn are most unfavorable, mainly on account of the width of the channel and the low shores. Owing to these conditions, the construction costs and land damages which would be entailed by the creation of a head equal to that at Burleigh would be unreasonably large in view of the capacity of the plant. Furthermore, any increase in the height of the Auburn dam would result in either the total or partial elimination of the head at the waterworks dam. The head at the waterworks property being not more than 10 feet, anything short of the complete drowning out of the dam would appear to be poor policy, as it would result in the ruin of the property as a commercial proposition.

For the reasons above mentioned it is highly probable that the Auburn property could best be handled by developing for a head of 15 feet and ultimately developing the waterworks property to full capacity, the two plants to be run in parallel. Under these conditions, against the additional administration charges due to the operation of two separate plants, could be placed the annual charge on the excessive investment necessary to cover the land damages which would result from combining the two heads at Auburn.

At Burleigh Falls the changing or adapting of topographical conditions is primarily in the hands of the canal authorities. The conditions at present existing at Burleigh are such as to make the capital cost of development per horse power lower than the average, and further changes contemplated by the canal authorities will tend to make conditions still more favorable for the power interest. At Burleigh the item of land damages will be entirely eliminated and the capital costs of permanent works substantially less than at Auburn.

Titles.

The property at Auburn is held under a deed and a clear title can be obtained by purchase. The property and privileges at Burleigh are privately held under two leases, one of which was granted by the Dominion and the other by the Provincial Government. It seems clear from the conditions contained in it that the Provincial lease is forfeited, but the conditions of the Dominion lease are of such a general and indefinite nature that there is considerable uncertainty as to what right the lessee holds under it. In this connection it seems advisable to get information on the following points:—

1. Has the Dominion Government any right to, or control of, surplus water after the purposes of navigation have been satisfied, except where it has purchased

property rights? Otherwise, is the surplus water not the property of the Provincial Government?

2. Are the rights and privileges of a lessee from the Dominion Government of such a nature as to be subject to expropriation proceedings under a Statute of the Provincial Legislature?

If these questions can be cleared up and the Burleigh site purchased under reasonable conditions, or otherwise acquired, there seems to be no doubt, all things being considered, that this site is better adapted to the needs of the city of Peterboro than any other location on the river, Auburn included. In the event of the city's demand ultimately exceeding the capacity of the Burleigh plant, the full capacity of the waterworks dam could be developed and the two operated in parallel. With these two plants to draw on, the city would be safe in overselling the installed capacity by a considerable amount.

The estimate submitted herewith is for the development of the full capacity of the Burleigh site under present conditions, with provision for efficient operation under a definite increment of head. The estimate includes the capital charges for development, step-up transformation, transmission, step-down transformation at Peterboro, engineering contingencies, and interest during investment, maintenance and depreciation, operation and lost power.

In conclusion it must be understood that the function of this report is purely advisory, and that before any definite action is taken towards development, a detailed survey should be made of any site that may be ultimately chosen, from which plans and estimates may be prepared, which will show whether or not the project is one which the municipality can handle with safety and profit.

Estimate based on the development of full capacity of Burleigh Falls under 22-foot head, and a net delivery of 1,850 horse power at Peterboro, permanent works being constructed for operation under an ultimate head of 26 feet and a net delivery of 2,150 horse power at Peterboro.

Capital Cost.

Dam and head works and foundation	$34,000 00
Power House and Transformer Station	20,000 00
Hydraulic equipment	26,000 00
Electrical equipment	40,000 00
Step-up transformation	36,500 00
Transmission (single line)	38,000 00
Step-down transformation	36,000 00
Miscellaneous	5,900 00
	$236,400 00
Engineering and contingencies, 10%	23,640 00
Interest during construction, 3%	7,801 00
Total capital investment	$267,841 00

Cost of 1 H.P. to build, transmit and transform on basis of 1,850 H.P. delivered, $145.00.

Capital Charges.

Generation	$4,600 00
Step-up transformation	1,800 00
Transmission	2,375 00
Step-down transformation	1,730 00
Engineering and contingencies, 12%	1,260 00
Annual interest on $268,000 at 4½%	12,050 00
Operation and administration	10,000 00
Total capital charges	$33,815 00

Total annual cost of 1 H.P. at low tension busbars of Peterboro substation on basis of 1,850 H.P. delivered, $18.30.

Bruce Mines. Power for Municipality.

Power Requirements.

The existing market in the municipality is insignificant, and the object of the investigation was to determine the amount of power available to the municipality which could be offered as an inducement for the establishment of industries.

Available Power.

The main source of power upon which this municipality is dependent is the Mississauga River. The Thessalon River is much nearer to the town, but as a source of power is not worth considering from an industrial standpoint. At Milltown, about 7 miles from Bruce Mines, is a small power that would serve the town's municipal and residential requirements for some time to come, but the development cost would be high in proportion to the output of the plant, and as a source of power for industrial purposes it is quite inadequate.

On the Mississauga River, however, some very good power locations exist, and the low water flow of the river is sufficient to develop some fairly large blocks of power. In so far as the town of Bruce Mines is concerned, the great drawback in connection with development on the Mississauga is the transmission distance, the nearest available site being 26 miles from Bruce Mines.

Available Power Sites.

On this river, the site best suited to the requirements of the municipality is undoubtedly Slate Falls, but it appears that this property is held privately under a deed and is not in the market. An estimate for Slate Falls is contained in the Fifth Report of the Hydro-Electric Power Commission.

Leaving Slate Falls out of consideration, the most favorable site is that at Squaw Chute, and an estimate for the development of this property is included in this report.

Minimum Capacity.

Taking the figures given in the Fifth Report of the Hydro-Electric Power Commission, this portion of the river will discharge 850 second feet under conditions of minimum flow, this being equivalent to approximately 77.5 horse power minimum 24-hour power per foot of head, without storage.

The natural head at the chute is about 17 feet, but the estimate is based on the possibility of increasing this to 25 feet, the topographical features of the locality being such as to make this assumption reasonable. According to the above estimates of discharge the minimum power capacity of this location under a head of 25 feet will be 1,930 horse power continuous 24-hour power at the turbine shaft.

The dam construction necessary in connection with this development will create a storage basin above the works, which, while not having sufficient to appreciably augment the natural flow of the river at low stages, will nevertheless be exceedingly useful as regards load factor accommodation, the extra water impounded being used to carry the plant over the period when the daily simultaneous demand of all customers reaches the maximum value. For this reason it would be safe to oversell the maximum capacity of the plant (1,930 horse power) from ten to possibly twenty-five per cent., this percentage depending upon the number of hours per day of service called for in the contracts with the various customers.

Development.

The proposed scheme of development will involve the construction of an overflow dam in the main channel, a power house with headworks in the central channel and either a spillway or core-wall at the head of the outer high-water channel. The entrance of the central channel should also be provided with an ice-boom or ice racks.

The cost of construction is based on the possibility of delivering construction material at Rock Lake by rail, and a thirteen-mile team haul from this point to the power site. The long haul will of course materially increase the cost of construction.

Any attempt to submit an estimate with prices based on the present power demand in the municipality would force the price of delivered power beyond reasonable limits. The capital and annual costs per horse power have therefore been calculated on the assumed delivery in Bruce Mines, first, of full capacity, and, secondly, of half capacity, all losses being deducted in each case, and the price based on the actual quantities of power delivered.

It will, of course, be recognized that the function of this report is purely advisory, and while it gives a fairly accurate and wholly conservative indication of the possibilities, no definite action should be taken in connection with development until a detailed survey of the property has been made. This survey will serve as a basis for estimates which will show definitely whether or not the project can be handled by the municipality with safety and profit.

ESTIMATE No. 1.

Provides for the net delivery in Bruce Mines of 1,750 H.P.

Capital Investment.

Dam, head works and Power House	$31,450 00
Excavation and false work	15,500 00
Hydraulic equipment	28,000 00
Electric equipment	41,920 00
Step-up transformation	33,740 00
Transmission	52,000 00
Step-down transformation	41,900 00
	$244,510 00
Engineering and contingencies, 10%	24,451 00
Interest during construction, 3%	8,069 00
Total capital investment	$277,030 00

Cost of 1 H.P. to build on basis of 1,750 H.P. delivered, $158.00.

ESTIMATE No. 1.

Annual Charges.

Dam, head works and Power House	$693 00
Hydraulic equipment	1,410 00
Electric equipment	2,467 00
Step-up transformation	1,734 00
Transmission	3,554 00
Step-down transformation	2,129 00
Engineering and contingencies, 10%	1,200 00
Annual interest on $277,000 at 4½%	12,500 00
Operation	7,200 00
Total annual charges	$32,887 00

Total annual cost of 1 H.P. at low tension busbars of Bruce Mines sub-station on basis of 1,750 H.P. delivered, $18.80.

ESTIMATE No. 2.

Provides for the net delivery in Bruce Mines of 880 H.P.

Capital Investment.

Dam, head works and Power House	$31,450 00
Excavation and false work	15,500 00
Hydraulic equipment	16,200 00
Electric equipment	23,380 00
Step-up transformation	20,670 00
Transmission	33,770 00
Step-down transformation	26,600 00
	$167,570 00
Engineering and contingencies, 10%	16,757 00
Interest during construction, 3%	5,530 00
Total capital investment	$189,857 00

Cost per H.P. to build on basis of 880 H.P. delivered, $215.00.

ESTIMATE No. 2.

Annual Charges.

Dam, head works and Power House	$629 00
Hydraulic equipment	854 00
Electric equipment	1,294 00
Step-up transformation	1,003 00
Transmission	2,476 00
Step-down transformation	1,263 00
Engineering and contingencies, 10%	750 00
Annual interest on $190,000 at 4½%	8,550 00
Operation	5,700 00
Total annual charges	$22,519 00

Total annual cost of 1 H.P. at low tension busbars of Bruce Mines sub-station on basis of 880 H.P. delivered, $25.60.

NORTH BAY, RE POWER SUPPLY FROM SMOKY FALLS.

Power Requirements.

The market at present existing in this municipality approximates 1,200 horse power, and the object of this report is to determine the probable capital investment and annual expenditure necessary to insure the delivery in North Bay of certain blocks of power, as specified hereunder.

Source of Power.

The source of power to be considered is the Sturgeon River. This river, which has a watershed area of 2,300 square miles, drains about half of that portion of the Nipissing District lying to the south and west of Lake Temagami. At the present time, the natural characteristics of this river are such as to make it favorable for power purposes. The comparative uniformity of flow which mainly distinguishes it at present will, of course, suffer in course of time from the extensive lumbering operations carried on pretty generally throughout the watershed, and artificial means must eventually be employed to maintain present conditions. The municipality of North Bay would, however, be able to obtain an ample power supply from this river for some time to come, under natural conditions.

Power Sites.

Owing to the transmission distance, it is necessary that the site for development should have as many natural advantages as possible, the most important being a good natural head.

Of the undeveloped locations upon the river, the one which best fulfils these conditions is that known as Smoky Falls, and the estimates following have been prepared in connection with the development of this site, and the transmission of the power to North Bay.

Power Capacity.

Under conditions of average flow, the Sturgeon River would produce 100 horse power continuous 24-hour power per foot of head.

The investigations of the Hydro-Electric Power Commission indicate, however, that 77 horse power continuous power per foot of head is all that can be depended upon under minimum conditions of flow. This being the case, and assuming the possibility of obtaining a head of 30 feet, the minimum capacity of this site will be slightly less than 2,500 horse power continuous 24-hour power.

The following estimates will be based upon the possibility of generating 2,500 horse power at full load, with a half-load capacity of 1,250 horse power.

Development.

The natural head of Smoky Falls is 28 feet and the permanent works necessary in connection with development will create at least two feet additional head, making 30 feet in all. Being a twin fall, the question of unwatering will be greatly simplified, as will also the disposal of flood water during construction, and when operation has begun.

The scheme of development will involve the construction of a dam at the head of each channel, the longer one across the left channel to serve for regulation and overflow, and the shorter one across the right channel to contain the headworks necessary to control and regulate the supply of water to the wheels.

The topographical features of the power site are as a whole favorable, and the scheme of development will be comparatively simple. The great disadvantage of the site is its inaccessibility, and the ten-mile team haul which will be necessary to deliver material will increase the construction costs considerably.

The estimate for full capacity presented herewith, includes the capital cost of permanent works, hydraulic and electrical equipment, transmission and transformation, and an allowance for engineering and contingencies and interest during construction. The estimate of annual charges for full capacity includes depreciation and maintenance on hydro-electric equipment, permanent works and transmission line, also interest on investment, and an allowance for operation and administration.

The estimate for half capacity will provide permanent works for full capacity, but hydraulic, electric and transmission capacity for half load only. Otherwise the half load estimate will be figured on the same basis as that for full load.

As indicated in the estimates the prices for power are for low tension power delivered at the municipal sub-station, but not distributed therefrom, and in conclusion it should be noted that this estimate, while very safe and liberal, is of an advisory nature, and before any definite steps are taken toward development, a detailed survey of the power site and a reconnaissance survey of the transmission route should be made, in order to obtain the data necessary for a closer estimate

ESTIMATE No. 1.

Provides for the delivery in North Bay of 2,500 H.P.

Capital Investment.

Dam, head works and Power House	$20,300 00
Excavation and false work	13,200 00
Hydraulic equipment	36,550 00
Electrical equipment	51,400 00
Step-up transformation	27,450 00
Transmission	47,800 00
Step-down transformation	38,730 00
	$235,530 00
Engineering and contingencies, 10%	23,553 00
Interest during construction, 3%	7,066 00
Total capital investment	$266,149 00

Cost of 1 H.P. to build on basis of 2,500 H.P. delivered, $106.00.

ESTIMATE No. 1.

Annual Charges.

Dam, head works and Power House	$338 00
Hydraulic equipment	1,706 00
Electrical equipment	3,001 00
Step-up transformation	1,560 00
Transmission	3,150 00
Step-down transformation	2,110 00
Engineering and contingencies, 10%	1,186 00
Annual interest on $266,200 at 5%	13,310 00
Operation and administration	7,000 00
Thirty years' sinking fund at 5%—1.51%	4,019 00
Total annual charges	$37,380 00

Total annual cost of 1 H.P. at low tension busbars of North Bay sub-station on basis of 2,500 H.P. delivered, $14.95.

August 12, 1908.

ESTIMATE No. 2.

Provides for the delivery in North Bay of 1,200 H.P.

Capital Investment.

Dam, head works and Power House	$18,300 00
Excavation and false work	13,200 00
Hydraulic equipment	21,400 00
Electrical equipment	27,450 00
Step-up transformation	16,200 00
Transmission	29,600 00
Step-down transformation	24,000 00
	$150,150 00
Engineering and contingencies, 10%	15,015 00
Interest during construction, 3%	4,503 00
Total capital investment	$169,668 00

Cost of 1 H.P. to build on basis of 1,200 H.P. delivered, $142.00.

ESTIMATE No. 2.

Annual Charges.

Dam, head works and Power House	$318 00
Hydraulic equipment	932 00
Electrical equipment	1,606 00
Step-up transformation	901 00
Transmission	2,100 00
Step-down transformation	1,256 00
Engineering and contingencies, 10%	711 00
Annual interest on $169,700 at 5%	8,485 00
Operation and administration	5,400 00
Thirty years' sinking fund at 5% — 1.51% on $169,700	2,562 00
Total annual charges	$24,271 00

Total annual cost of 1 H.P. at low tension busbars of North Bay sub-station on basis of 1,200 H.P. delivered, $20.23.

August 12, 1908.

GAS PRODUCER REPORT.

During the year 1908 your Commission, in accordance with the request of the Legislature, made an exhaustive report on the cost of Power Production, through the agency of Producer Gas Plant and other prime movers under the conditions obtained in the Province of Ontario. The work was completed in the month of March, and during its operation a staff of expert engineers was engaged and detailed information was collected from all the well-known plants of both Canada and the United States. A large number of tests were performed on Gas Producer Plants and Engines with the object of obtaining as complete and reliable data as possible, and from the results obtained a comparison of the different classes of prime movers was made and formed into detailed, tabulated and technical information, which printed report was submitted to the Legislature in 1908. Your Commissioners have received enquiries from all over the world for this report, which is met with great favor amongst the engineering profession.

SECOND ANNUAL REPORT

FOR TEN MONTHS ENDING OCTOBER 31, 1909.

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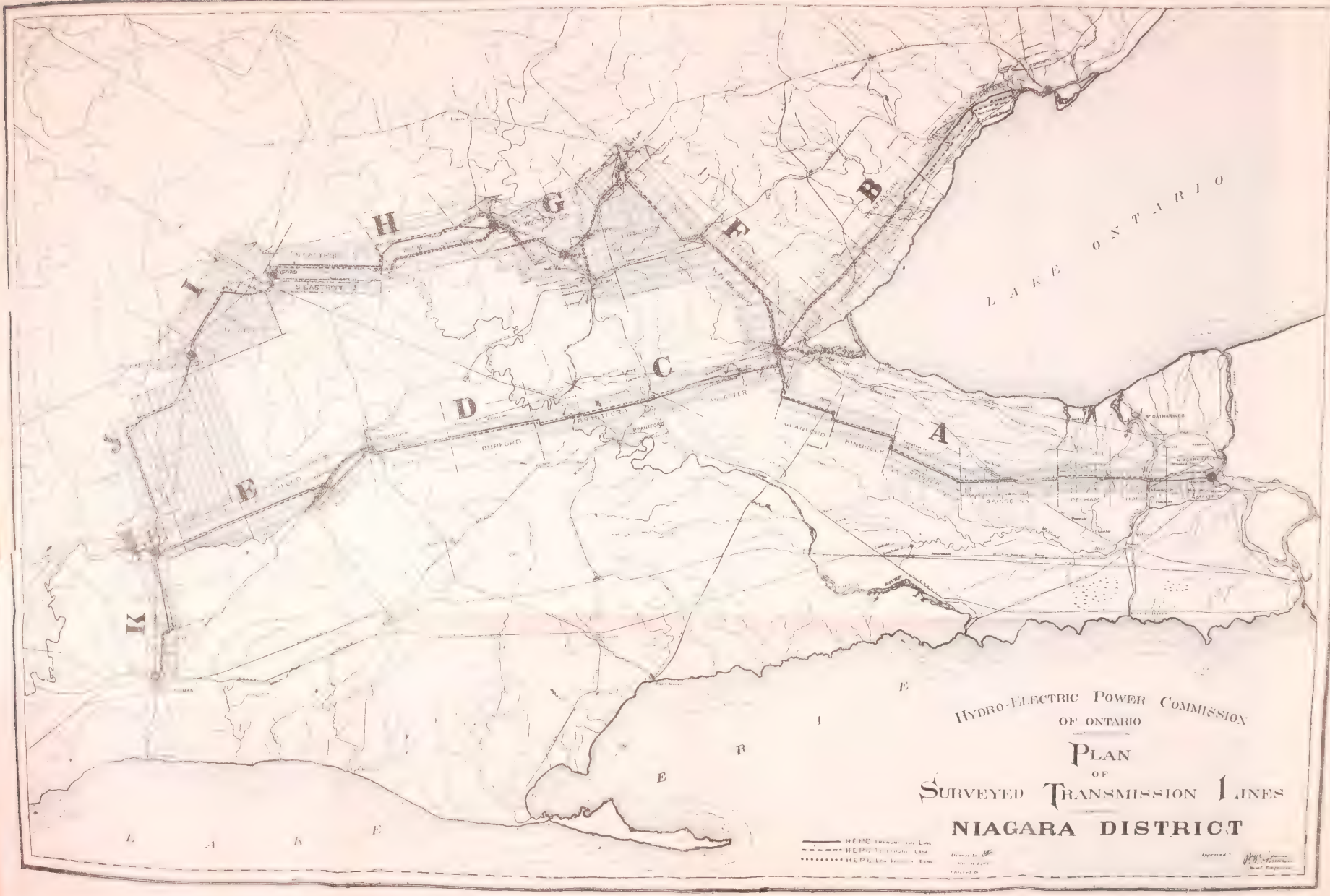
LAKE ONTARIO
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HYDRO-ELECTRIC POWER COMMISSION
OF ONTARIO
PLAN
OF
SURVEYED TRANSMISSION LINES
NIAGARA DISTRICT

Hydro-Electric Power Commission.

SECOND ANNUAL REPORT.

INTRODUCTORY.

In submitting the Second Annual Report, covering the year 1909 up to and including October 31st, it has been thought advisable to divide the report into the following sections, for the sake of clearness and reference:

I. Transmission Line Construction—Niagara District.
II. Station Construction—Niagara District.
III. Hydraulic Work.
IV. Municipal Work—Niagara District.
V. General.

Actual construction of transmission line has been commenced in the Niagara district, and work on this line is proceeding in a rapid and favorable manner. Work will be continued through the winter, and the Contractor confidently expects to have the line completed within the limit set in the contract.

Work on the telephone lines and protective equipment which follow the highways to a great extent is being pushed to a speedy conclusion, as the telephone service will be of great value in the construction of other parts of the system.

Work on the stations is being rushed, and an effort is being made to have the roofs on before snow comes, so that work on the inside can be proceeded with during the winter.

Station Equipment, both mechanical and electrical, is under construction in the different factories, and will undoubtedly be completed when needed.

A number of reports on different water powers throughout the Province have been made at the request of the adjacent municipalities.

In some cases storage areas have been surveyed and reported on, and in the case of Dog Lake the specifications and plans for an increased storage capacity have been prepared for the Department of Public Works.

Considerable work is being accomplished in aiding the municipalities, so that they will have their systems in operating condition when the power is ready for delivery.

Your Chief Engineer and one of his assistants visited Europe in the early part of the year for the purpose of collecting data and information which would be of value to the Commission in its work.

P. W. Sothman,
Chief Engineer.

TRANSMISSION LINE CONSTRUCTION.

1. PRELIMINARY ENGINEERING, TESTS ON MATERIAL AND CONTRACTS.

(1) Towers.

Subsequent to the signing of the agreements of November 6th and November 25th, 1908, between the Commission and the F. H. McGuigan Construction Company, as incorporated in our Annual Report for 1908, considerable time was taken up in the discussion and adjustment of the various details of construction, organization, etc., and in the making of tests on the various types of apparatus entering into the construction of the line.

Tower Tests.

The design of tower submitted not being entirely satisfactory to the Commission, it was decided that two sample towers should be built, one to conform to the Contractor's design, and one to follow the Commission's design. This was done, and these towers were subjected to comparative tests. The results of these tests follow:

Tower No. 758—Commission's design.
Tower No. 744—Contractor's design.

Report on Tower Tests.

The tests were performed in the order given below. Loads were applied by loading buckets with punchings and scrap iron, which were suspended from the point of load by cables.

Tower No. 758.—Test No. 1, March 5th, 1909, a.m.

The tower No. 758 was loaded for test 1 (*a*) after all loads had been applied, as per test sheet No. 1, at points 1 to 10. The deflection at the end of the arm was 1½ inches downward, readings being taken at point A. These loads were removed in the following order, and readings for vertical deflections taken at point A.

Removed Load.	Deflection.
No. 1	1.55
2	1.59
3	1.67
4	1.79
5	2.45
6	2.53
7	2.56
8	2.45
9	2.43
10	1.90

1.90 represented the permanent set of the cross arm. The above loading caused no strain in any part of the tower, the permanent set being probably due to slippage at bolts in arm.

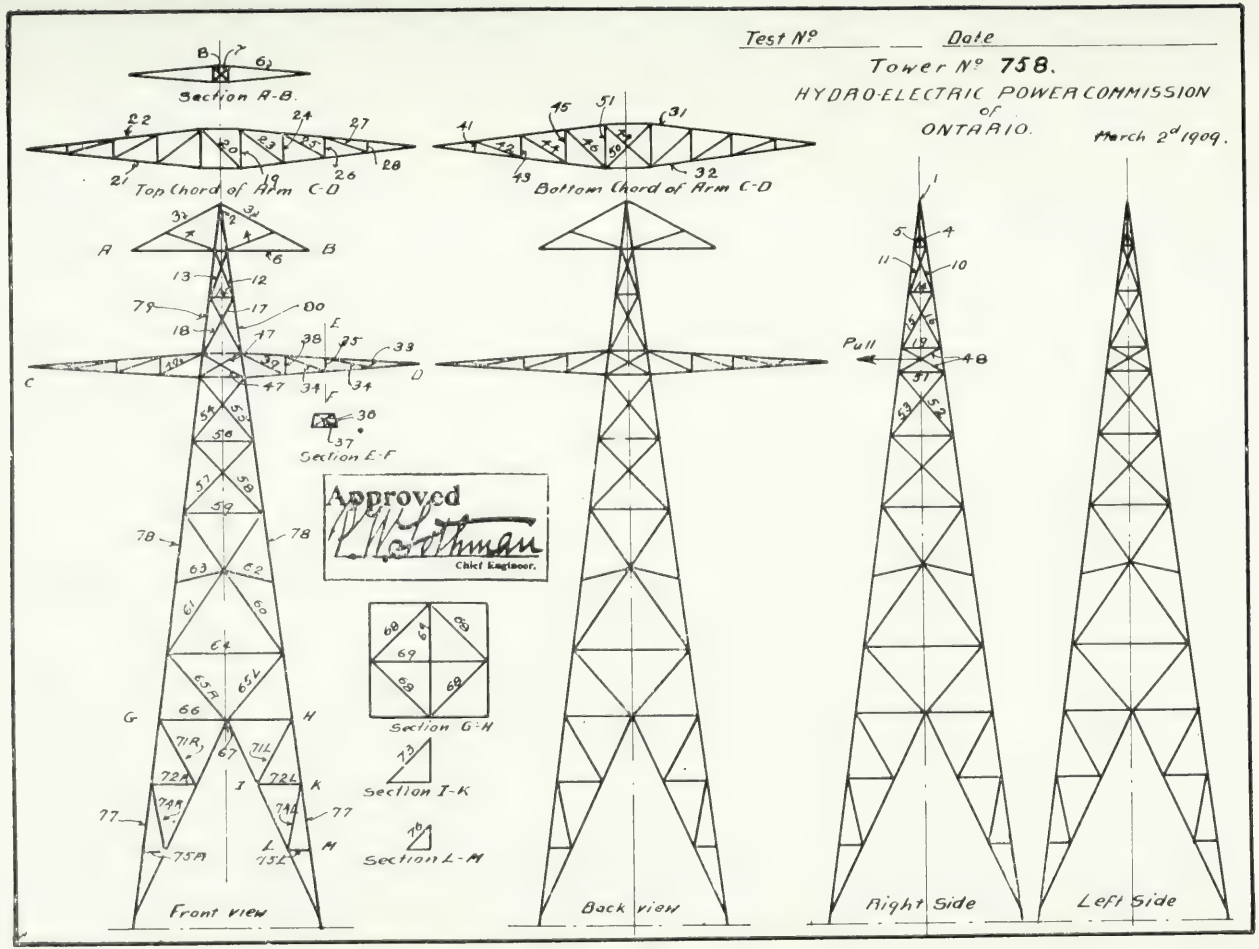
On removing one of the cables suspending one of the loads as per test No. 1, the same was dropped and struck the third horizontal in the centre, jarring it considerably. On examination the angle was found to be bent ¼ inch. Was taken out to be straightened.

Test No. ____ Date ____

Tower No. 758.

HYDRO-ELECTRIC POWER COMMISSION of ONTARIO.

March 2d 1909.



Test No. 2, March 5th, a.m.

The tower was loaded as per test 1 (*b*), the loads of 2,000 lbs. were applied at points 1 and 2, as shown in test sheet No. 2. The deflection of a point in the lower bracing of upper arm was measured by plumb bob placed at ground level. Two separate readings were made of the deflection of the cross under above loads, as follows:

1st. By means of transit and scale attached to end of arm at point A; and
2nd. By means of the deflection of a measuring rod attached to the arm at B.

A series of readings were also taken to note the twist of the main part of the tower under these loads, which are plotted on a separate sheet accompanying.

The following readings were taken for this loading, as per test sheet No. 2.

Loads.		Deflections.		
At point 1.	At point 2.	By measurement at B.	By transit.	By Plumb.
2,000	0	9 16	0.6	1/8
2,000	2,000	1 3/4	1.7	5 16
2,000	again 2,000	1 13 16	1.8	9/32
0	0	3 4	....	....

Loads continued after test 1 (*c*) had been performed.

Loads.		Deflections.		
At point 1.	At point 2.	By measurement at B.	By transit.	By plumb.
2,000	2,100	1 13 16	1.5	
2,100	2,100	1 27 32	1.6	5 16
2,200	2,100	1 7 8	1.65	
2,200	2,200	1 15 16	1.75	
2,200	2,300	2	1 8	
2,300	2,300	2 1/16	1.9	11/32
2,300	2,400	2 1 8	1.95	
2,400	2,400	2 1 4	2.05	3 8
2,400	2,500	2 9 16	2.1	13 32
2,500	2,500	2 9 16	2.15	
0	0	1/4 in.	0	0

After removal of loads a permanent twist of angles 21, 22, 31 and 32 at end of arm was noted, as per sketch, about 1 inch from horizontal in 4 inches.

The angles Nos. 57, 61, 65 and 76, which take compression, were considerably bent, indicating that the tension members were working. After load was removed, these angles returned to their original positions. This load did not cause any strain in tower other than the twist in the arms.

Test No. 3, March 5th.

Tower loaded as per test 1 (*c*) at point B, test sheet No. 3. Special harness was made of channels to apply the load to the four panel points at A, B, C and D. The cable connecting the load to harness was placed about 7 inches above the lower panel joints.

The following readings were taken for the loads:

A: Deflections of loads measured by measuring deflections of a measuring stick permanently connected to tower at A.

B: Readings by transit, reading on a scale placed at B.

C: Readings taken by plumb bob connected at C of horizontal cross bracing angle No. 50 of lower cross arm.

Loads.	Deflections.		
	A.	B.	C.
3,500	3 16	.15	3 16
4,000	1 4	.3	7/32
5,000	3 8	.4	5/16
6,000	15 32	.5	3/8
7,000	17 32	.52	15/32
8,000	5 8	.62	9 16
9,000	11 16	.65	5 8
9,500	23 32	.7	23 32
10,000	13 16	.75	3 4
Load removed.	0	0	0
10,000	13 16	.75	3/4
10,500	29 32	. ..	13 16
11,000	15 16	.9	21/32
11,500	1.	.95	7/8
12,000	1.1 16	.98	15 16
12,300	1.3 32	.99	31/32
12,400	1.3/32	.99	31 32
12,500	1.1 8	1.	1.
Loads removed.	0	0	0
12,500	1.1 8	1.	1.
13,000	1.7/32	1.05	1.1/8
13,500	1.1 4	1.1	1.5/32
14,000	1.5 16	1.15	1.7/32
14,500	1 3 8	1.25	1.9 32
15,000	1.7 16	1.27	1.3/8
Load removed.	1 16	Permanent set.	

At loading of 12,500 lbs. the bending of the long counter bracing angles 61, 65 L and 67 was noticed.

At loading 15,000 lbs. the left point of main leg angles No. 77 appeared to be slightly curved at the three lower panels, as per test sheet No. 3. The angles 67 were bent in on sides and out on front view. The counter angles 61 front, 60 side, 65 L, 57 front, 58 side, were bent out. On the removal of the load all of these angles returned to their original position, and the tower showed no points of strain.

Test of Tower No. 744.

Test No. 1 was not performed on the tower, as the arms are similar in both cases, and it was deemed unnecessary.

Test No. 2, March 6th, 1909.

Loaded in the same manner as above tower, the following readings being taken of deflections:

A: Readings taken at A. Test sheet No. 2.

B: Transit readings of scale at B and C, plumb bob readings.

Loads.		Deflections.		
At point 1.	At point 2.	A.—Inc.	B.—Inc.	C.—Inc.
.....	2,000	11 16	.65	1 8
2,000	2,000	1.15 16	1.95	11 32
2,000	2,100	2.	2.00	.....
2,100	2,100	2.1 16	2.1	17/32
2,100	2,200	2.3 16	2.15	.....
2,200	2,200	2.7 32	2.2	17 32
2,200	2,300	2.1 4	2 25	.....
2,300	2,300	2.5 16	2.4	9 16
2,300	2,400	2.3 8	2.45	....
2,400	2,400	2.9/16	2.55	19 32
2,400	2,500	2.3 4	2.65	....
2,500	2,500	2.15 16	2.9	5 8
0	0	11 32	.3	....

The above readings, on application of the various loads, show a uniform increase in the deflection.

Readings were taken for twist of the main tower. These are given on a separate sheet.

At 2,400 lbs. at points 1 and 2, angles 57, 63 and 69 on right side, and angles 58, 62 and 68 left side, were bent considerably, 57 showing a bend of at least 1½ inches, and showed a slight set after the removal of the load.

Considerable twist of the angles at the end of arm was noted. This took a permanent set after the removal of load.

Test No. 2, March 6th, 1909.

Load applied as per 1 (*c*) at point B, using a harness similar to that of tower No. 758. Readings were as follows:

A: Readings by measurement of deflections of measurement stick at A.

B: Readings of transit of scale at B.

C: Readings of plumb bob string.

Loads.	Deflections.		
	A.	B.	C.
3,500	1 4	0.	11 32
4,000	5 16	.05	13 32
5,000	11 32	.1	1 2
6,000	7 16	.2	9 16
7,000	17 32	.3	11 16
8,000	19 32	.45	25 32
9,000	11 16	.5	7 8
9,500	23 32	.55	15 16
10,000	7 8	.6	1.
0	1 16 set	.2	....
10,500	15 16	.95	1.1 16
11,000	21 32	1.	1.1 8
11,500	1.	1 05	1.3 16
12,000	1.3 32	1.1	1.1 4
12,300	1.1 8	1.15	1.9 32
12,400	1.1 8	1.15	1.5 16
12,500	1.1 8 plus	1.15	1.5 16
0	1 8 set	.03	.....
12,500	1.5 16	1.25	1.13 32
13,000	1.3 8	1.3	1.15 32
13,500	1.13 32	1.4	1.17 32
14,000	1.1 2	1.45	1.5 8
14,500	.....	.....	.....

The load of failure was actually 14,500 lbs. plus the weight of one man, or 14,650 to 14,680.

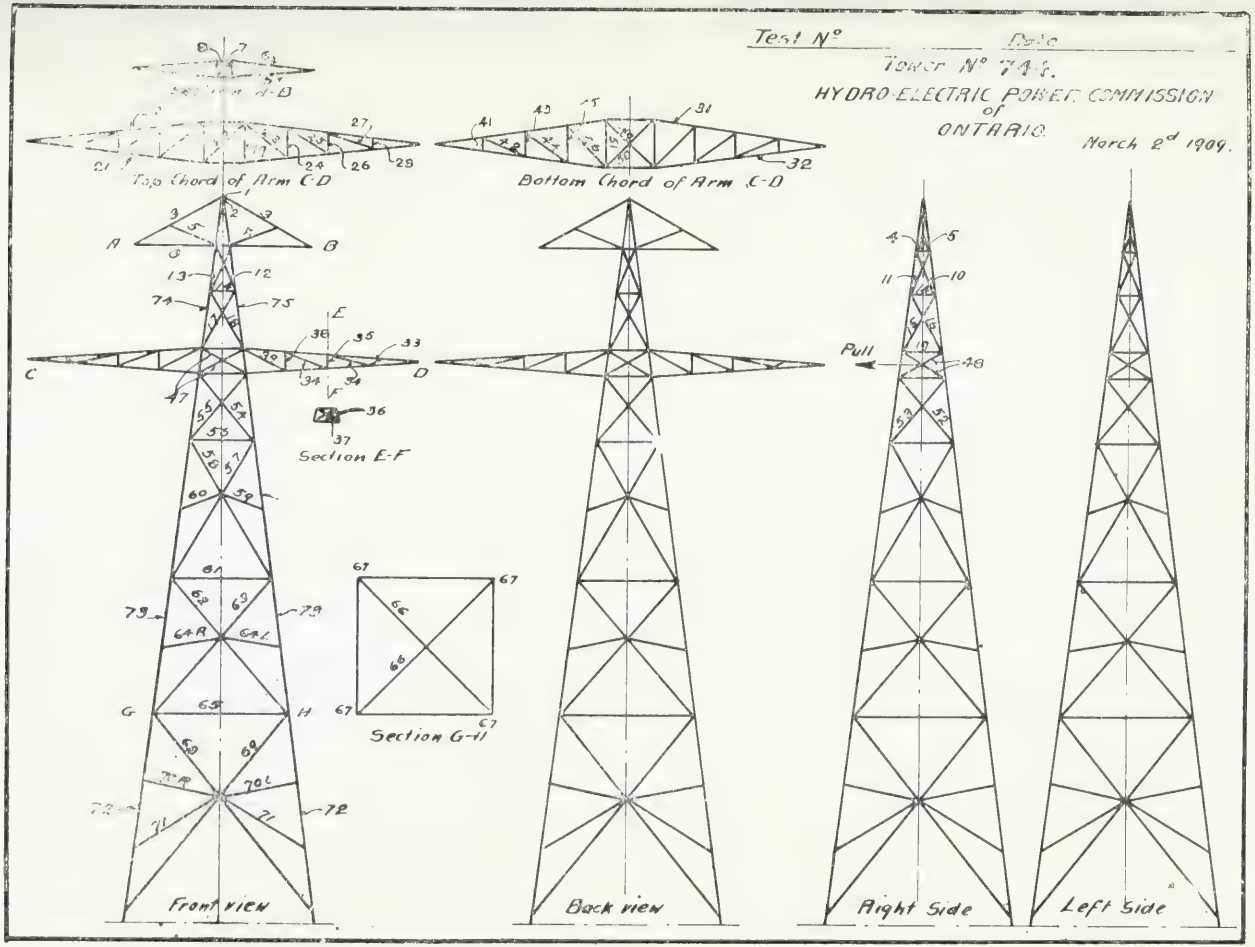
The deflections show a uniform increment for increasing loads.

At 12,500 lbs. counters of panels 2, 3 and 4 are considerably bent, showing that tension members are working. Also the main leg member shows a slight curvature at middle of lower panel on right side. At 13,500 lbs. this becomes more marked and the curvature is continued to lower section of third panel from arm, and the curvature amounting to as much as ½ to ¾ inch. At 14,500 lbs. (plus weight of man) the tower failed by the right leg member buckling at the lower half of the third panel down, the left leg immediately following, both legs bent out and buckled the counters of this panel.

Test of Upper Arm of Tower No. 758.

Load applied in a horizontal direction at cable support of upper arm. Scale placed on end of arm. Readings being taken by transit as follows:

Load.	Deflection.	
2,000	3.	Scale twisted downward about ¼ inch.
2,100	3.05	.....
2,200	3.25	.....
2,300	3.45	Scale twisted about 4 inches to 1 foot.
2,400	3.55	.....
2,500	3.99	.....
Load off	1.35	.....


Test N°
Tower N° 74S.
HYDRO-ELECTRIC POWER COMMISSION
of
ONTARIO.
March 2nd 1909.
Top Chord of Arm C-D
Bottom Chord of Arm C-D
Section E-F
Section G-H
Front view
Back view
Right Side
Left Side
Pull

The arm was considerably twisted when load was applied, the angle being about °.

When load was removed, the angle took a permanent set of 1.35 inch.

Final Test of Tower No. 758.

Applied loads as per 1 (*c*) and started with 10,000 lbs. as follows: Three buckets being connected to the pulling harness of channels. The entire bucket connection was 7 inches from lower arm, and the other two were connected at 9 and 11 inches respectively, from the lower arm.

The readings were as follows:

A: By measuring deflections at measuring stick placed at A.

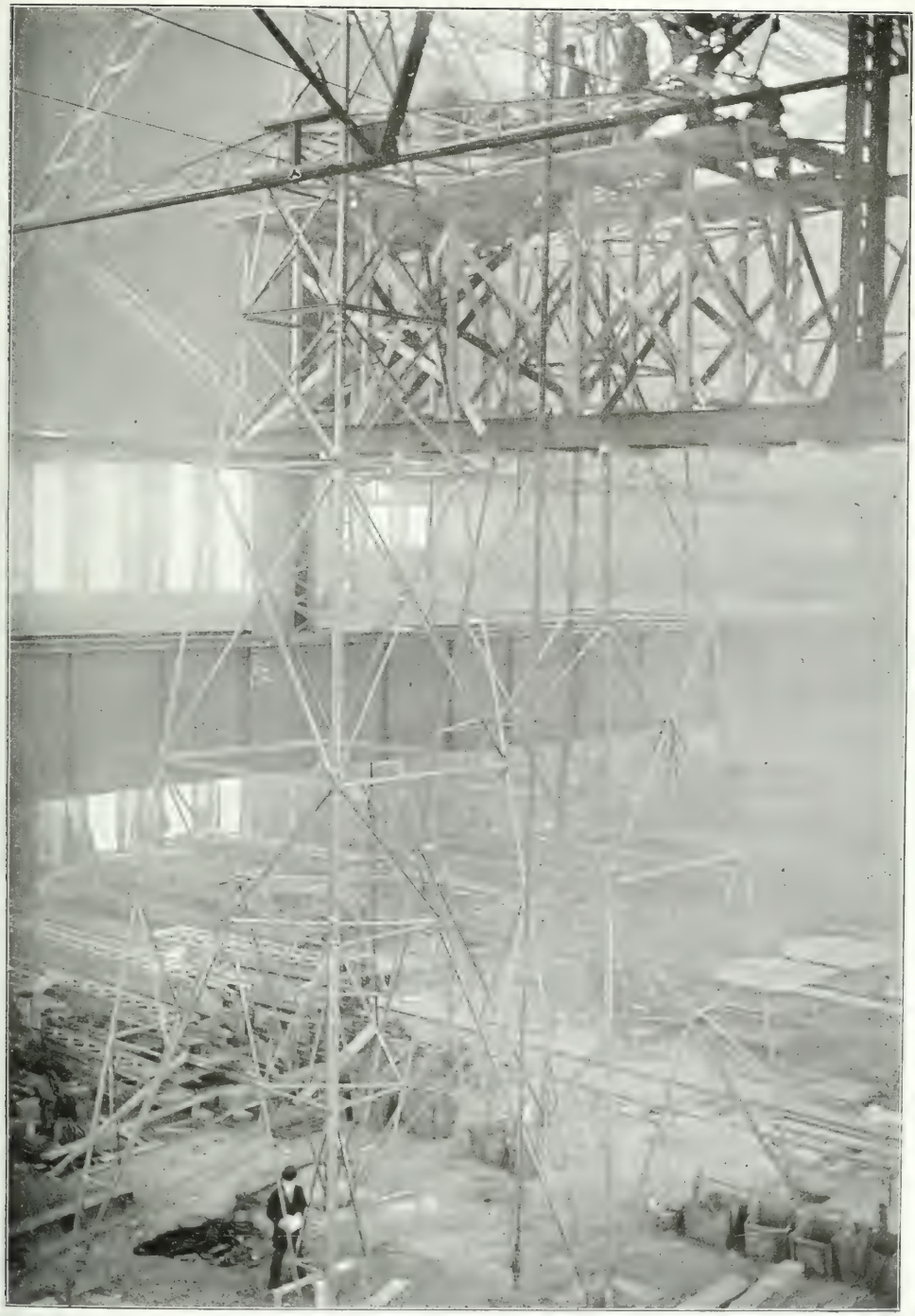
B: By transit and scale at B.

Loads.				Deflections.	
Left Bucket.	Centre Bucket.	Right Bucket.	Total.	A.—Inc.	B.—Inc.
2,500	.....	.....	2,500	1 4	.....
2,500	.....	2,500	5,000	7 16	.....
2,500	5,000	2,500	10,000	7 8	.7
2,500	7,500	2,500	12,500	1.3 16	.95
2,500	8,500	2,500	13,500	1.9/32	1.05
2,500	9,000	2,500	14,000	1.11/32	1.1
2,500	9,500	2,500	14,500	1.7/16	1.2
2,500	10,000	2,500	15,000	1.15 32	1.3
2,500	10,500	2,500	15,500	1.17/32	1.4
2,500	11,000	2,500	16,000	1.5 8	1.45
2,500	11,500	2,500	16,500	1.11 16	1.5
2,500	12,000	2,500	17,000	1.25 32	1.55
2,500	12,500	2,500	17,500	1.13 16	1.60
2,500	13,000	2,500	18,000	1 29 32	1.70
2,500	13,500	2,500	18,500	2.	1.80
2,500	14,000	2,500	19,000	2.1 16	1.90
2,500	14,500	2,500	19,600	2.3 16	1.98
2,500	15,000	2,500	20,000	2.1/4	2.03
2,500	15,000	2,600	20,200	2.9/32	2.10
2,750	15,000	2,750	20,500	2.3/8 plus	2.15
2,750	15,200	2,750	20,700	2.13 32	2.20
2,750	15,450	2,750	20,950	2.1/2 & 2.5/8	Failed

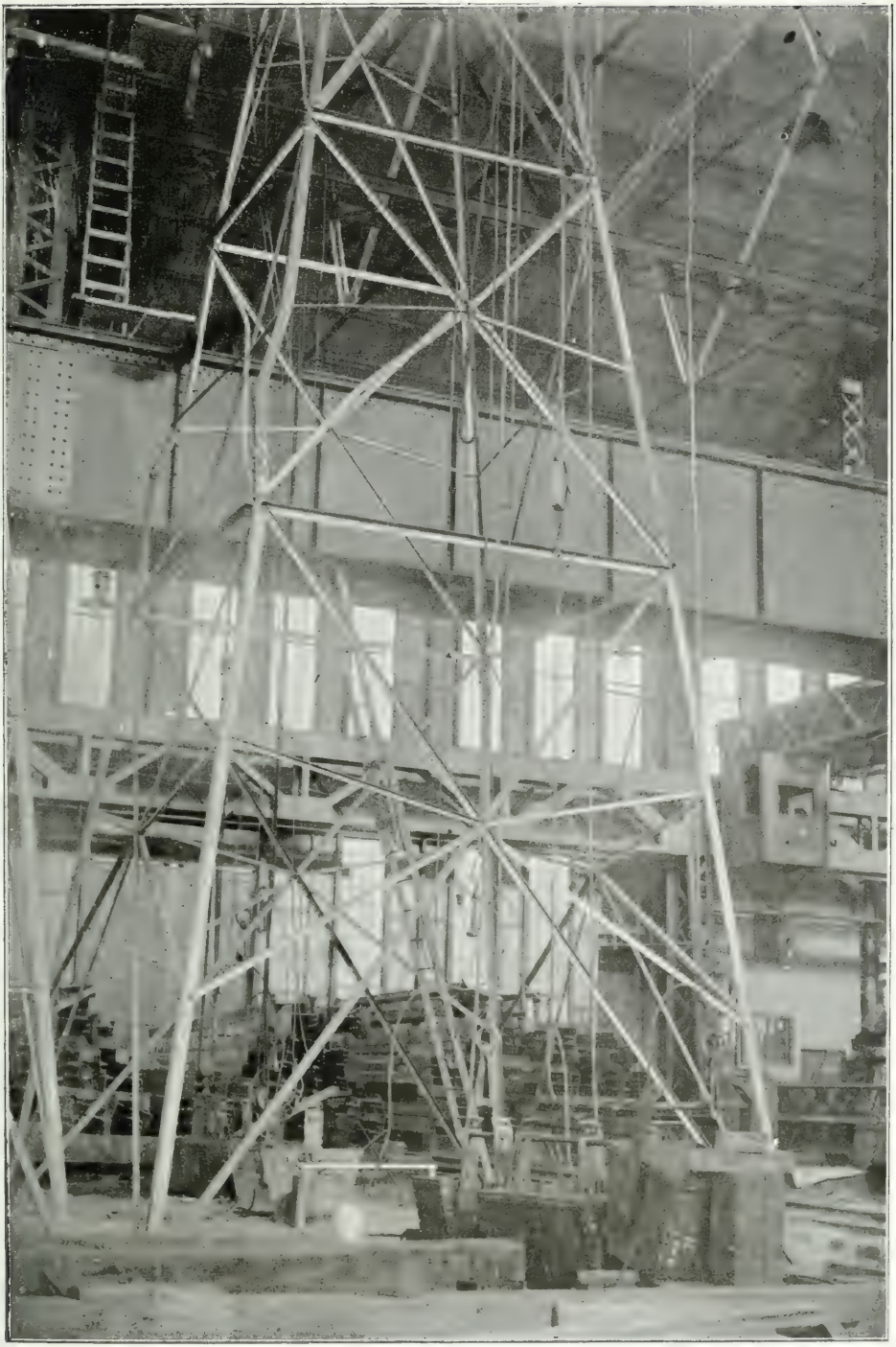
The tower failed by buckling of the left tower leg in lower panel and between connection of angles 71 and 70. It bent outwards at this point, the right leg immediately following and buckling in the same manner. This member had shown distress for some time before it actually failed. The loading at actual failure is somewhat less than recorded, due to the method of application.

After some slight changes, the plans of the tower following the Commission's design were approved for construction on March 19th, 1909, and the Contractor ordered to proceed with the fabrication. On April 5th the first order for 1,000 standard towers was given by the F. H. McGuigan Construction Company to their sub-contractors, the Canadian Bridge Company at Walkerville.

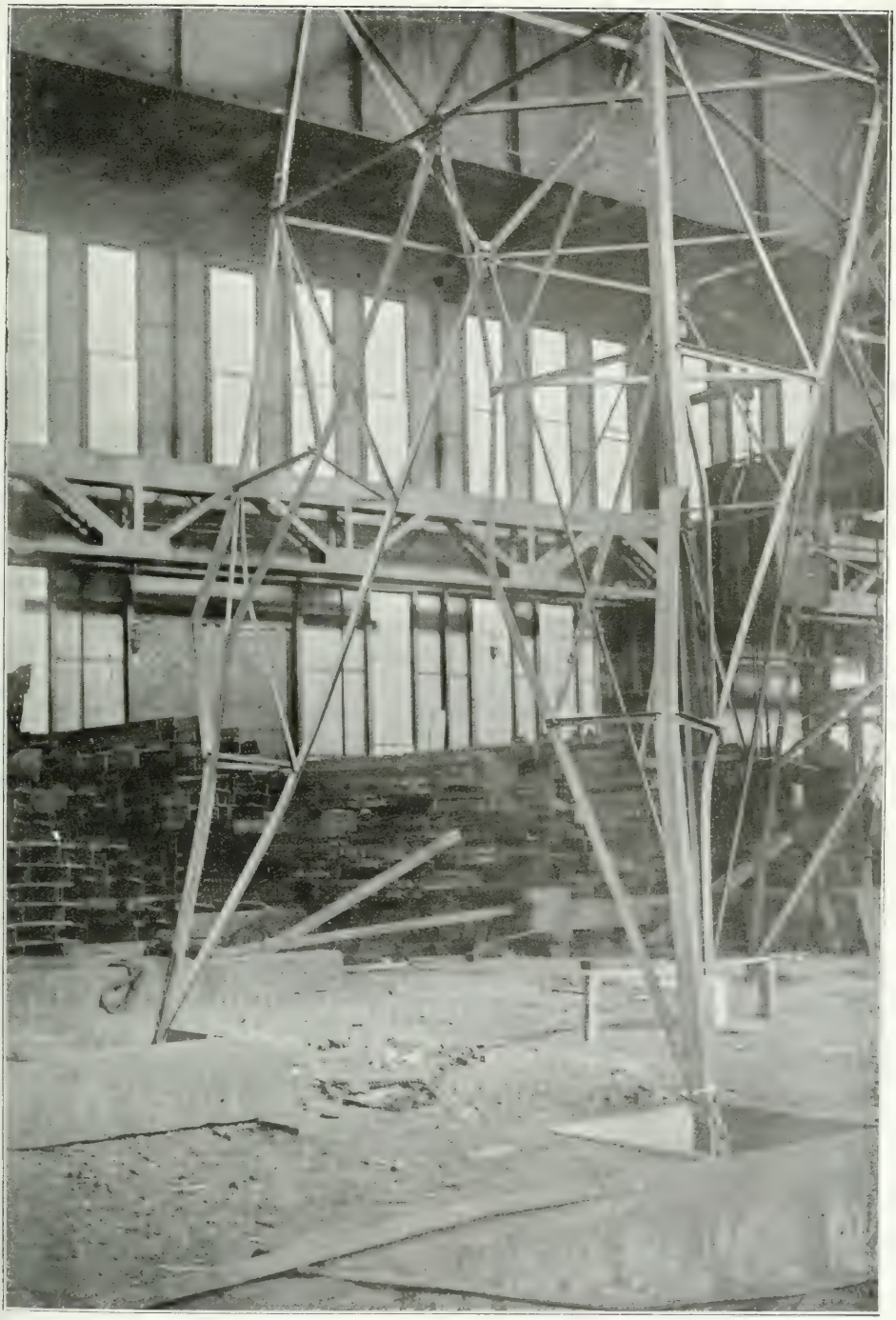
On April 13th the rolling mills started rolling steel for these towers. Galvanizing started about June 1st, but on account of delay in the galvanizing department it was not until July 6th that the first shipment of ten towers was made. Towers were shipped at the rate of five per day until July 20th, when shipments were increased to ten per day.



Test Towers in the Shop of the Canadian Bridge Co., Walkerville, Ont.



Failure of Contractor's Tower.



Failure of Commission's Tower.

(2) Insulators.

When it was decided to transmit power at 110,000 volts, it was also decided to adopt the suspension form of insulator in preference to the pin type, which had been the standard for all lines up to 60,000 volts. Before specifications were prepared, all insulator factories were visited, in order to collect data regarding the insulators themselves, to become acquainted with the method of their manufacture, and also to inspect the factories and determine their respective facilities, size, organization, etc. Tests performed at these factories showed such different results and performances that it was decided to have our own engineers make comparative tests on all insulators submitted under exactly the same conditions. With this object in view, the specifications called for the submitting of three complete sample insulators with each tender.

The Ontario Power Company, of Niagara Falls, in a very amiable manner placed all apparatus and machinery used in these tests at the disposal of the Commission, furnished all the power gratuitously, and assisted the Commission's Engineers in their work in a most willing and disinterested way.

After the samples of insulators accompanying tenders were received, they were submitted to very exhaustive tests, occupying the greater part of the time from February 8th, 1909, to May 18th, 1909, with the object in view of comparing the performance of the different makes, when subjected to exactly the same conditions. The most important condition was the application of artificial rain. The apparatus for this test was so arranged that all insulators were affected alike. The precipitaton and direction of flow of water representing rain could be controlled, as could also the voltage to which the insulators were subjected.

As a means of comparison of the different results, characterized by a more or less vivid luminous display, a large number of photographic records were taken, the test being performed in absolute darkness.

In addition to the electrical tests, the mechanical features of the different insulators were thoroughly investigated. A great number of breaking tests were performed to ascertain the strength and rigidity of the insulators and their connections.

This investigation did not take the prices of the insulators into consideration. It was only after arriving at a definite conclusion as to the best-suited insulator that prices were taken into consideration and final selection of type was made.

The specifications for high tension insulators called substantially for an insulator to withstand electrically a potential of 330,000 (three times normal) volts, dry, and of 220,000 (twice normal) volts under a rainfall of half-inch of water per minute, combined with a wind strong enough to direct the flow of the rain at an angle of 45° towards the insulator. This was accomplished by means of a number of spray nozzles directed at an angle of 15° towards the insulator and the flow of water regulated until a precipitation of half-inch per minute was obtained.

Mechanically the suspension insulator, or the insulator from which the cable is suspended, was required to withstand a pull of 8,000 pounds without injury to any of its parts. The strain insulator, or the insulator which is used to take up the horizontal strain of the cable, was required to withstand a pull of 10,000 pounds.

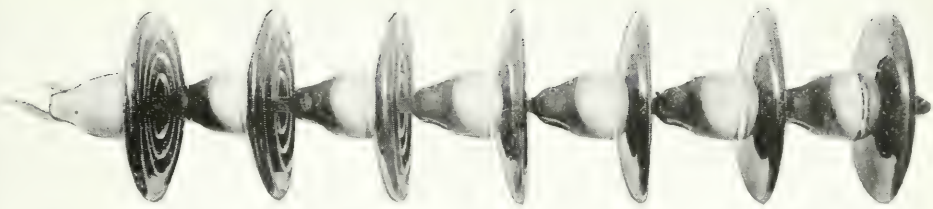
Tenders were sent in by the General Electric Company, Schenectady, N.Y.; the Locke Insulator Company, Victor, N.Y.; the Ohio Brass Company, of Mansfield, Ohio; and the Hermsdorf Company, of Hermsdorf, Germany, through their Canadian representative in Montreal. In all there were seven different styles of insulator under consideration, the photographs of which are herewith reproduced.

The Ohio Brass Company's insulators, after a few changes, were finally selected for both suspension and strain type, eight sections being used for the suspension type and ten reinforced sections being used for the strain type.

The tenders as submitted are reproduced herewith, together with the copies of agreements and contracts with the Ohio Brass Company.

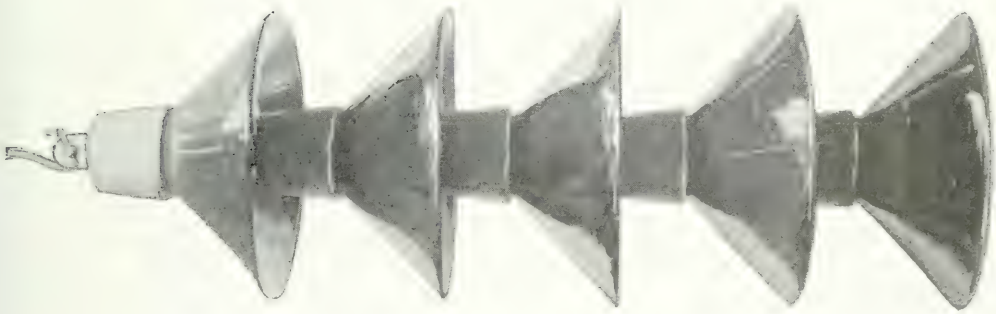
TENDERS FOR HIGH TENSION TRANSMISSION LINE INSULATORS.

Tenderer.	Delivery 1st 1,000 Insulators in Weeks.	Suspension Type.					Strain Type.				
		Sections.	Price per 100 F.O.B. R'y Sidings. First Order, 13,350.		Price per 100 F.O.B. Cars Dundas. Extra, 1,000 –10,000.		Sections.	Price per 100 F.O.B. R'y Sidings. First Order, 1,650.		Price per 100 F.O.B. Cars Dundas. Extra, 100 – 1,990.	
			Car Load Lots.	Less Car Lots.	Car Load Lots.	Less Car Lots.		Car Load Lots.	Less Car Lots.	Car Load Lots.	Less Car Lots.
			$ c.	$ c.	$ c.	$ c.		$ c.	$ c.	$ c.	$ c.
General Electric Co., Schenectady, N.Y.	12	5	870 00	870 00	870 00	870 00	5	1,053 00	1,053 00	1,053 00	1,053 00
Locke Insulator M'f'g Co., Victor, N.Y.....	8	5	1,065 00	1,065 00	1,065 00	1,065 00	7	1,491 00	1,491 00	1,491 00	1,491 00
R. Thomas & Sons, East Liverpool, Ohio.....	23	5	1,148 13	1,148 13	1,148 13	1,148 13	6	1,377 75	1,377 75	1,377 75	1,377 75
Hermsdorf Watsondack & Co., Montreal, Que.	10	5	868 00	880 00	868 00	880 00	5	868 00	880 00	868 00	880 00
Ohio Brass Co., Mansfield, Ohio	10	8	700 00	710 00	700 00	710 00	10	965 00	977 00	965 00	977 00



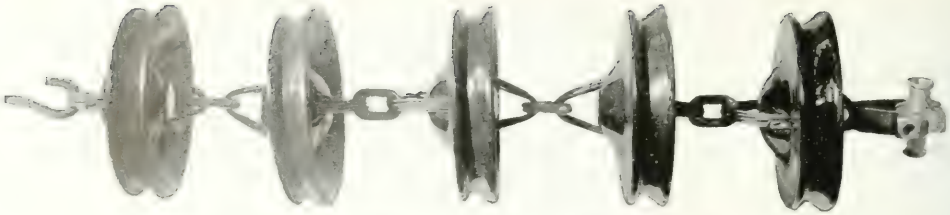
Proposed Ohio Brass Co.'s Suspension Type. Eight Sections.

Proposed Hermsdorf Suspension Type.



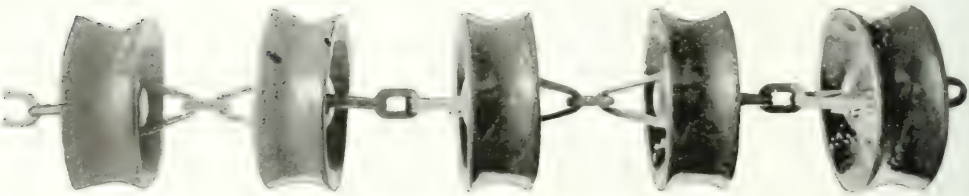
Proposed Locke Suspension Type.

Proposed Thomas Suspension Type. 12-inch spacing.



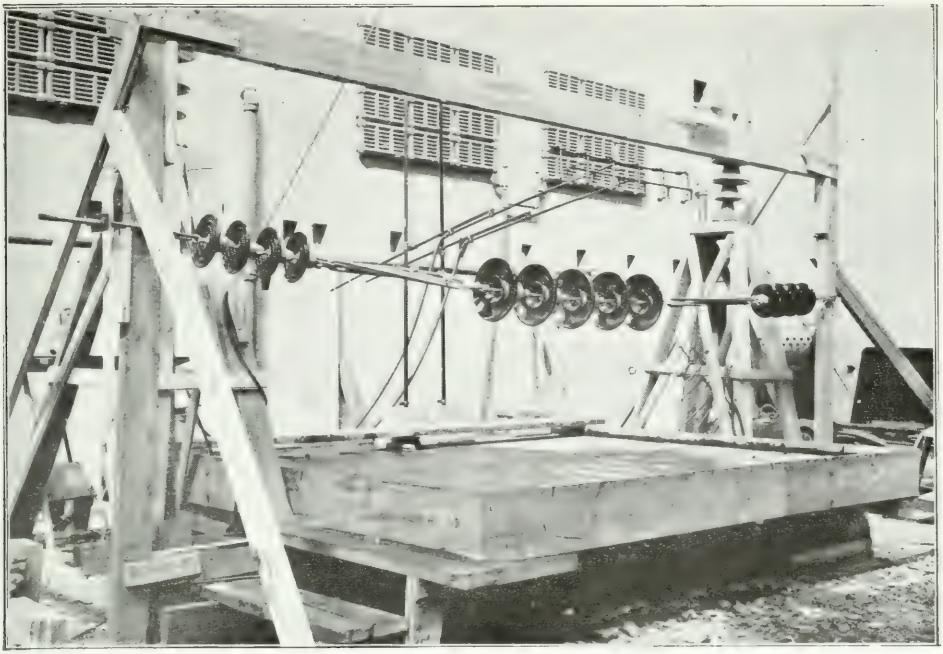
Proposed General Electric Co.'s Suspension Type.

Proposed Ohio Brass Co.'s Strain Type. Ten Units.

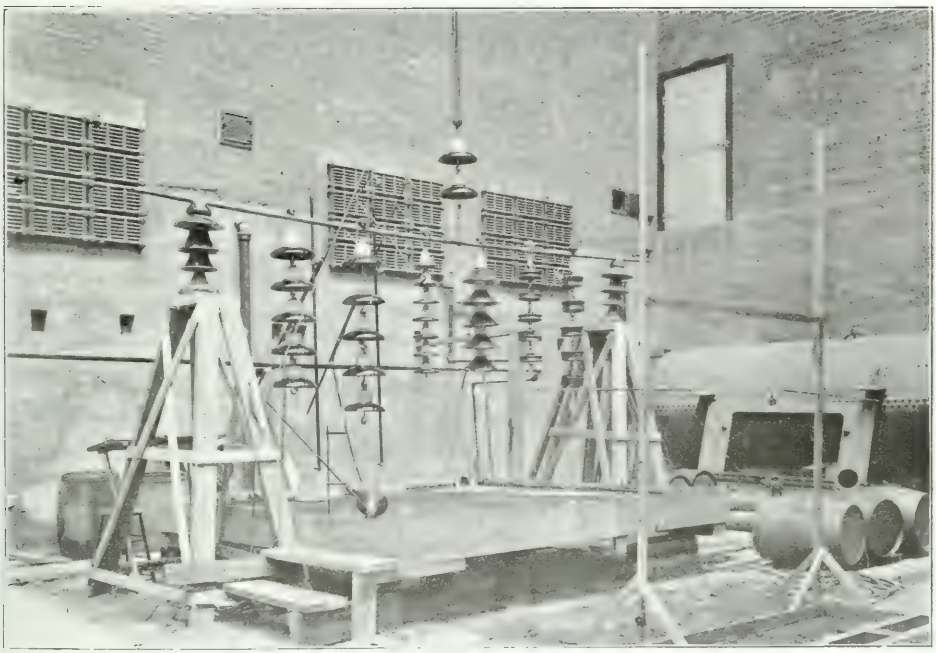


Proposed General Electric Co.'s Strain Type.

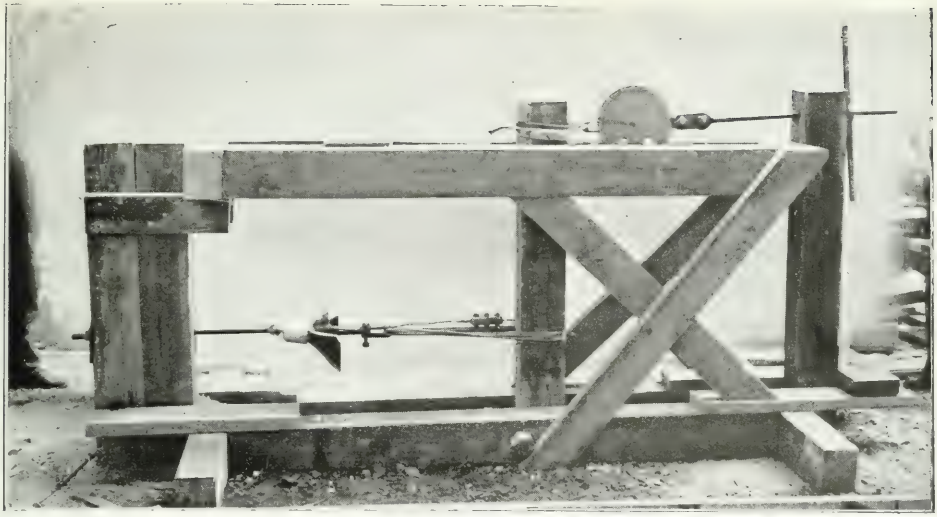
Proposed Ohio Brass Co.'s Double Strain Type.



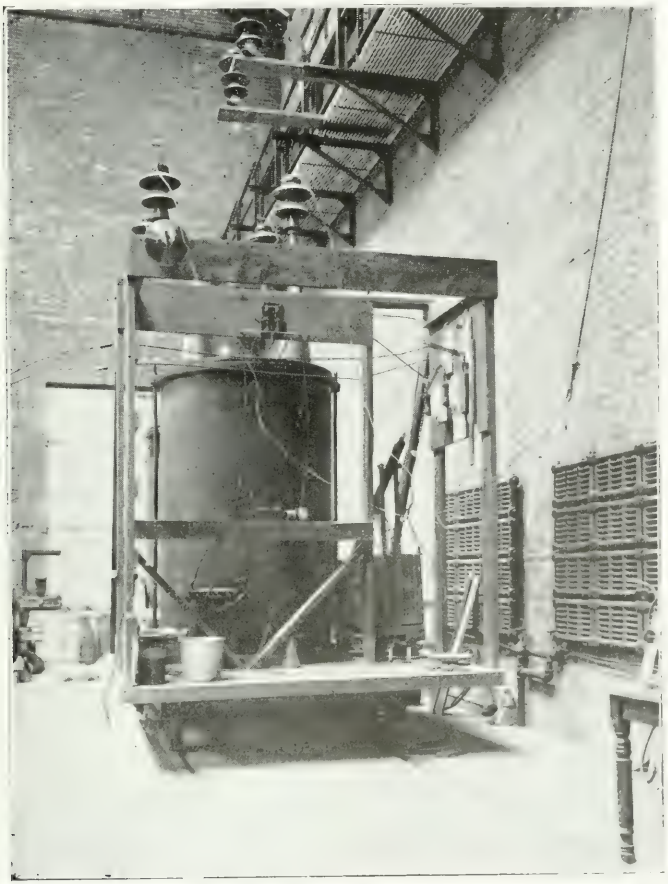
Testing Platform for Strain Insulators.



Testing Platform for Suspension Insulators.



Pulling Machine. To Determine Breaking Load of Insulator.



Testing Transformers.

Eleven thousand suspension units and three thousand strain units have been ordered from the Ohio Brass Company this year.

THIS AGREEMENT made in triplicate this twenty-ninth day of April, 1909,

BETWEEN THE OHIO BRASS COMPANY, of Mansfield, Ohio, hereinafter called the "Contractor," of the first part, and THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission," of the second part.

WITNESSETH, that the parties covenant, promise and agree with each other as follows:

1. The Commission's Specifications and General Conditions of Contract attached hereto and marked "A," with Commission's drawings No. 1-T-69, detail of "U" Bolt Connection to Transmission Tower, dated 4-19-09; Contractor's drawing No. 6,987 (Cap and Pin), dated 4-8-09, marked "B"; Contractor's approved drawing, as initialed and approved by the Engineer, marked "C"; Contractor's Bond, marked "D," and all specifications and drawings therein provided for shall form part of this contract.

2. The Contractor agrees:

(*a*) To deliver in cars, free of duty, freight and all other charges, 6,000 insulators—3,500, approximately, at points on steam railroad sidings between Niagara Falls and Dundas, and 2,500, approximately, at such points between Dundas and Toronto. The Engineer is to give his order under paragraph 8 (*a*) of said general conditions, not later than . Provided that the Contractor shall, prior to said date, have submitted samples of the said insulators satisfactory to the Engineer, and the same have been approved by him, otherwise the order shall not be given until the samples are approved. Within eleven weeks of such order the Contractor shall ship 1,000 to such points as the Engineer may, by fourteen days' previous notice in writing to the Contractor, direct, and 5,000 shall be shipped to such points as the Engineer may, by such notice, direct, in quantities between 1,200 and 1,700 each month.

(*b*) To deliver to the Commission a bond, satisfactory to the Commission, to secure the sum of Ten Thousand Five Hundred Dollars ($10,500.00), for the proper performance of the contract.

(*c*) To use the best material and construct the said insulators in a thorough workmanlike manner, in strict conformity with the said specifications and drawings.

(*d*) On or before the 1st of December, 1909, upon request in writing, to enter into one or more contracts to deliver, at the same prices per 100, and upon the same terms, conditions, specifications and drawings, or as from time to time amended by mutual consent of the parties hereto, not less than 1,000 and not more than 25,000 additional insulators. From 1,200 to 1,700 are to be delivered complete each month. The Commission may, at its option, postpone first delivery under any such contract until 1st May, 1910. A surety company bond is to be given for 25 per cent. of the amount of any such contract.

3. The Commission agrees to pay to the Contractor for the said insulators $700.00 per hundred, in carload lots of not less than 100 insulators, and $710.00 per hundred in less than carload lots.

4. It is further agreed:

(*a*) For all purposes of this contract, notices shall be served upon the Engineer, or his appointee, in writing for the Commission, and upon the Secretary of the Contractor, or his appointee, in writing.

(*b*) All the rights and remedies of the Commission, and of the Engineer acting on their behalf, may be exercised and continued concurrently or in the alternative.

(*c*) Time shall be of the essence of this agreement.

(*d*) In case any municipal corporation which shall contract with the Commission for a supply of power, or any person, firm or corporation which shall contract with any such municipal corporation or with the Commission for a supply of power, shall suffer damages by reason of the breach of this contract by the Contractor, and such municipal corporation, firm, person or corporation would, if the Contractor had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy the Commission shall be entitled to commence any such proceedings or bring such action in any Court in the Province of Ontario, for or on behalf of such municipal corporation, firm, person or corporation, and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages; but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjusted to be paid if such proceeding or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

(*e*) In case either of the parties shall, at any time or times, be unable to perform this contract by strike, lock-out, riot, fire, explosion, act of God, war or any other cause reasonably beyond their control, then the Contractor shall not be bound to deliver [and/or] the Commission shall not be bound to accept insulators during such time, but the parties shall be prompt and diligent to remove the cause or causes of interruption in so far as they are able, and when such interruption has ceased the parties shall be prompt and diligent to perform the contract. Provided that if such interruption is, or is likely to be unreasonable, the arbitrators may determine that the parties shall be released from this contract.

(*f*) If any difference shall arise during the progress of the work as to any matter or thing arising under or out of this contract, such difference shall be referred to two arbitrators, one to be chosen by each of the parties hereto, and they shall choose a third arbitrator, but if they cannot agree, such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible, the arbitrators shall decide such difference in a summary manner. Either party may appeal from any award of the arbitrators, as provided by the Arbitration Act, R.S.O., Chap. 62, but no such

Accepted Ohio Brass Co.'s Suspension Insulator Provided with Cable Clamps and Guards.

appeal shall be carried beyond the decision of the Court of Appeal of Ontario. The arbitrators shall not consider any difference or matter which is to be decided by the Engineer, or as to the grounds upon which, or mode in which, any opinion may have been formed or discretion exercised by the Engineer.

(*g*) This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the said parties.

IN WITNESS WHEREOF:

THE OHIO BRASS COMPANY,
(Signed) A. L. WILKINSON, *Secretary.*
A. BECK.
Chairman of the Commission.

JOHN S. HENDRIE,
Commissioner.

GENERAL CONDITIONS.

1. Location of work.

The transmission system referred to in the Specifications is located in the Province of Ontario, Dominion of Canada. The high tension lines are designed to operate at approximately 110,000 volts, and the total length of line operating at this voltage will be about 300 miles.

2. Terms used.

(*a*) The word "Commission" shall mean the Hydro-Electric Power Commission of Ontario, Canada.

(*b*) The word "Contractor" shall mean the party to whom shall have been let the Contract or Contracts for the work to be done and for the materials to be supplied under the Specifications, or the legally appointed representatives, assigns,, or executors, of said party.

(*c*) The word "Engineer" shall mean the Chief Engineer of the Commission.

(*d*) The word "Work" shall mean and include all the work to be furnished by the Contractor under this Contract, in the manufacture, testing and shipment of the materials he is to supply under the Specifications.

(*e*) The "Contract" shall mean and include, together with the formal Agreement, all Specifications and drawings further detailing, explaining, or modifying the materials, even though these drawings and Specifications be issued, with the approval of Engineer and Contractor, after the execution of said Contract.

(*f*) The word "Inspector" shall mean the person or persons duly authorized by the Engineer to inspect the materials under the Contract.

(*g*) It is understood that where, for purpose of brevity, terms "undamaged condition" or "safe delivery," or equivalent terms are used in these Specifications, General conditions and Agreement, they shall be construed as meaning Insulators or Units which have not cracked or broken, or the parts of which have not been loosened in transit to the steam railroad sidings to which said Contractor has shipped said Insulators or Units.

The execution of the contract shall involve and include:—

3. Execution of contract.

(*a*) The signing of the Drawings and Specifications by both the Contractor and the Commission.

(*b*) Within two weeks from the date of notification mailed to him to the effect that his tender has been accepted, the successful tenderer shall execute the Contract.

(*c*) The Contractor giving a Bond of a Trust or Guarantee Company, or of sufficient Sureties satisfactory to the Commission, for the completion and shipment of the materials and for the faithful performance by the Contractor of all the covenants, conditions and requirements specified in the Contract.

The Contract shall not bind the Commission unless and until the Bond shall have been duly accepted; nor shall it bind the Tenderer unless the Contract shall have been executed by the Commission within thirty days from the date of receipt of the Contract executed by the Tenderer.

Failure on the part of the successful Tenderer to comply with the requirements of this section shall constitute neglect and refusal, and his deposit shall become forfeit to the Commission.

4. Inspection. The materials supplied under the Specifications shall be subject to inspection by the Engineer or by the Inspector, who shall at all times be given free access to the work of manufacture and ample facilities for the examination of the work in process of manufacture of Materials, and all assistance which he may require in the performance of his duties. The Contractor on beginning or resuming operations shall notify the Engineer, in due time, so as to enable him to arrange for proper inspection.

All materials condemned by the Engineer or Inspector shall be replaced free of charge, in a manner satisfactory to him, as provided in attached Specifications.

In case the Engineer or the Inspector observes improper workmanship or material in the course of manufacture, he shall call the same to the attention of Contractor, or the superintendent in immediate charge of that portion of the work, who shall order the workmen to remove such improper materials.

The inspection herein provided for shall in no way relieve the Contractor of full responsibility for the quality and character of the materials, as shown by the inspection and tests.

5. Additional [illegible] The Contractor will receive in excess of the sum named in his tender no compensation for any work done or materials furnished, unless said materials be furnished by written order of Engineer.

6. Labor and [illegible] Contractor shall provide at all time a sufficient force of mechanics and laborers and an ample quantity of the best and most suitable tools and appliances for carrying, manufacture, testing and shipment of the materials to a satisfactory completion within the time specified in the Agreement.

Should Engineer notify Contractor in writing that the force of men employed, or the number of tools and appliances supplied in carrying out the work of furnishing the materials governed by the Specifications are not sufficient, or that the character of said tools and appliances is not suitable, or that the methods employed are not for the best interest of the said work, or are not such as to indicate that said work will be completed within the time mentioned in Contract, Contractor shall forthwith increase the number of men employed on the work embraced

in the Specifications. Should Engineer notify Contractor in writing that materials governed by the Specifications are not arriving at such a rate, or within such a time as to indicate that the entire work will be completed in the time mentioned in the Contract, Contractor shall forthwith proceed to obtain such materials at the rate or within the time directed by the Engineer, or in the event of his failure to do so, Commission may obtain such material and deduct the excess in cost thereof from any moneys then due or to become due to Contractor.

7. Sub-letting.

No part of the work shall be sub-let unless by written consent of Engineer, Contractor stating in writing to Engineer the name of the Sub-Contractor to whom he proposes letting any portion of the work.

8. Commencement, order and completion of work.

(*a*) The work shall not be commenced, nor shall any material be procured until Contractor shall have received a written order from Engineer to proceed; and it shall thereupon be at once begun and carried on continuously to completion, except as provided for in the Specifications.

(*b*) The materials under this Contract shall be completed and ready for shipment by the date therein specified, except as hereinafter provided; that, if, by reason of extra work, alterations or deviations from the Specifications, ordered by the Engineer and approved by Contractor, or through suspension of work by order of the Engineer, or through fires, strikes, floods, or through any other cause reasonably beyond the control of Contractor, he shall have been unduly delayed or impeded in the completion of the work, on a receipt of a written request from Contractor, Engineer may grant, in writing, such extension of time as appears to him fair and reasonable, and may assign some other day or days for the completion of the work under the Contract; this to be done without thereby prejudicing or in any manner affecting the validity of the Contract, or of any bond or surety.

Any and every such extension of time shall be considered to be in full satisfaction for, and in respect to, any and every actual and probable loss sustained or deemed to be sustained by Contractor, and shall in like manner exonerate him from any claim or demand on the part of the Commission for and in respect to the delay occasioned by the cause or causes for which any and every extension of time may have been granted, but not for or in respect to any delay continued beyond the time specified in the written notice of Engineer.

9. Forfeiture of contract.

In case the Contractor shall neglect or refuse to sign the drawings and specifications before commencing work, or fail or neglect to commence work within six days after the date of the Engineer's order to commence, or such longer period as may be fixed by written notice, or if he shall become bankrupt, or insolvent or compound with his creditors, or commit any act of insolvency, or shall transfer, assign, or sub-let this Contract or any part thereof without the consent of the Engineer, or if he permits any execution to be levied on his property, or if the works or any part of them be not completed at the expiry of the respective periods specified and guaranteed in the Contract for completion; or in case at any time the work or any part thereof is, in the judgment of the Engineer, not executed or not being executed in a sound and workmanlike manner, to his satisfaction and in all respects in strict conformity with the Contract; or if the work or any part thereof is not progressing

continuously and in such manner as to insure its entire completion, in the opinion of the Engineer, within the time stipulated, or if the Contractor shall refuse or neglect forthwith when so ordered, to conduct the work so as to insure its completion within the time stipulated, or if the Contractor shall refuse or neglect to replace any defective or unsatisfactory work with proper material and workmanship, or to alter and amend any defective or unsatisfactory work in accordance with the specifications attached, or neglect or refuse to comply with any orders given him, within the scope of this Agreement, by the Engineer within the time specified in a written notice, or neglect, either personally or by a skilled or competent agent, to superintend the work, or if the Contractor shall persist in any course in violation of any of the provisions of the contract, the Engineer may forthwith declare the Contract forfeit, and in each and any such case, after at least twenty-four hours' notice, the Engineer shall have the full right and power at his discretion, without process or action at law, to take the whole work, or any part or parts thereof specified in the said notice, out of the hands of the Contractor: and the Engineer may either re-let the same to any other person or persons, with or without its being previously advertised; or may purchase such additional materials (all at such prices as he may think proper), and use all such reasonable means as he may consider necessary or advisable to secure the proper completion of the work to his satisfaction; and the Contractor and his Sureties in every case shall be liable for all damages, expenditure and extra expenditure, and for all additional cost of the work, which may be incurred by reason thereof. And all the powers of the said Engineer with respect to the determination of any doubts, disputes and differences, and the determination of the sum or sums or balance of money to be paid to or received from the said Contractor, and otherwise in respect of the Contract, shall nevertheless continue in force. The fulfilment by the Contractor of any stipulation in this Contract may be enforced by legal proceedings and judgment, or order of Court, without prejudice to any other remedy herein contained.

In case the work or any part thereof is taken out of the hands of the Contractor, as herein provided, it shall in no way effect the relative obligations of the Commission and the Contractor, or his Sureties, in respect of his or their obligations, or in respect of the remainder of the work (if any), nor shall it be any excuse for delay in completing the same. And if any balances of the Contract price, or other money payable by the Commission, shall remain in the hands of the Commission upon the completion of contract, the same shall be payable to the Contractor or the person legally representing him; but neither the Commission nor any officer thereof shall be liable or accountable to the Contractor in any way for the manner in which, or the price at which the said work or any portion thereof may have been or may be done or completed by the Engineer.

10. Engineer's decision.

No work, or extra or addition work or charges shall be deemed to have been executed, nor shall Contractor be entitled to payment for the same, unless the same shall have been executed to the satisfaction of the Engineer in accordance with the Specifications and drawings, as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of Contractor to be paid therefor.

Commission shall have the right to suspend operations from time to time at any particular point, or upon the whole of the works. In the event of such right being exercised, so as to cause any delay to the Contractor, then an extension of time, equal to such delay, and to be fixed by Engineer, shall be allowed for completion of the Contract, and Commission shall pay Contractor all reasonable expenses arising from suspension of work, unless such suspension be due to some default on the part of Contractor. Contractor shall furnish Engineer with proper vouchers for all items upon which claim is made under this clause. 11. Suspension of work.

No such suspension shall violate this Contract or any part thereof, or release Contractor or others from any obligation hereby imposed, or bond, or surety for the performance of this Contract.

Contractor shall resume operations immediately upon receiving written instruction from Engineer to do so.

If the Commission continuously fail, neglect or refuse to perform this Contract, the Contractor may give notice to the Commission, setting forth such failure, neglect or refusal, and if within one month of the said notice, such failure, neglect or refusal has not been remedied by the Commission, the Contractor may submit the question of such failure, neglect or refusal to the arbitrators, and the arbitrators may, in addition to any other remedies, release the Contractor from this Contract.

(*a*) The Contractor shall pay all royalties (if any), and shall fully indemnify the Commission against all costs, judgments, or damages assessed against the Commission in suits or actions brought by any person or persons who base such suits upon his or their claim to be the Patentee or Patentees of any process used in connection with the work, or of any material, tool, or appliances used therein or therewith; and the Contractor shall furnish if desired proper licenses from the manufacturers of patented equipment used in the manufacture of the materials covered by this Contract, where failure to secure such licenses will result in delaying the progress of the work, or in loss to the Commission. 13. Responsibility regarding patents.

(*b*) On notification from the Commission, that such claim shall have been preferred, the Contractor shall, with the assistance, if necessary, of the Commission, at his sole expense conduct all negotiations for the settlement of the same, or any litigation arising therefrom.

All reasonable tests as per specifications attached hereto to determine that the quality of all materials conforms to specified requirements, whether tests are provided for or not, shall be made in a manner and with apparatus acceptable to the Engineer. 14. Tests.

During the progress of the work, the Engineer will submit such to suitable tests, at his discretion, as per specifications attached, to determine whether the requirements of the Contract shall have been complied with; upon satisfactory fulfilment of such requirements the Engineer will issue a certificate of such satisfactory tests.

At the end of each month the Engineer shall make a progress estimate of materials safely delivered during that month, which shall be used as a basis for paying the Contractor. Within twenty-five (25) days after the making of each such estimate, payment shall be made to the Contractor of an amount equal to seventy-five (75) per cent. of the value of all material safely delivered at steam railroad sidings as- 15. Payment.

ordered and the balance, or twenty-five (25) per cent. of the value of all Insulators accepted at the pottery and safely delivered at steam railroad sidings shall be paid within three (3) months after the date of receipt of Insulators at said railroad sidings.

The monthly estimates as prepared by the Engineer shall embrace every allowance to which the Contractor is entitled, but should the Contractor have reason at any time to claim that an error has been made in the progress estimates, he shall notify the Engineer in writing at once of his dissatisfaction and of his reasons therefor.

No payment made upon any monthly estimate shall be construed as acceptance of the work done or of materials supplied or as a release of the Contractor from any responsibility under the Contract, nor as controlling the Engineer in the preparation of his final estimate.

Before, however, the final payment is made, the Contractor shall furnish the Commission with satisfactory evidence proving all claims, suits, liens and demands of his employees and of parties from whom material or apparatus used in construction of the material may have been purchased or procured to be fully satisfied, and materials furnished and work done on the contract to be released fully from all such claims, suits, liens and demands.

THIS AGREEMENT made in triplicate this of July, 1909.

BETWEEN THE OHIO BRASS COMPANY, of Mansfield, Ohio, hereinafter called the Contractor, of the first part, and THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the Commission, of the second part,

WITNESSETH, that the parties covenant, promise and agree each with the other as follows:—

1. The Commission's Specifications and General Conditions of Contract attached hereto and marked "A," with Commission's Drawings No. 1-T-69, Detail of U-Bolt Connection to Transmission Tower, dated 4-19-09; Contractor's Drawing No. (Cap and Pin) dated , marked "B"; Contractor's approved Drawings, as initialed and approved by the Engineer, marked "C"; Contractor's Bond, marked "D," and all specifications and drawings therein provided for shall form part of this contract.

2. The Contractor agrees:—

(*a*) To deliver in cars free of duty, freight and all other charges, 1,650 10-unit, Strain type, porcelain insulators, 1,000, approximately, at points on Steam Railroad Sidings between Niagara Falls and Dundas, and 650, approximately, at such points between Dundas and Toronto. The Engineer is to give his order under Paragraph 8 (*a*) of said General Conditions, not later than . provided that the Contractor shall, prior to said date, have submitted samples of the said Insulators satisfactory to the Engineer and the same have been approved by him, otherwise the order shall not be given until the samples are approved. The Contractor shall ship by August 10th, 1909, 250 to such points as the Engineer may direct, and 1,400 shall be shipped to such points as the Engineer may, by such notice, direct, in quantities of 400 each month, in cars along with the standard suspension type insulators as required.

(*b*) To deliver to the Commission a Bond, satisfactory to the Commission, to secure the sum of Four Thousand Dollars ($4,000) for the proper performance of the Contract.

(*c*) To use the best material and construct the said Insulators in a thorough workmanlike manner in strict conformity with the said specifications and drawings.

(*d*) On or before the 1st December, 1909, upon request in writing, to enter into one or more contracts to deliver, at the same prices per 100, and upon the same terms, conditions, specifications and drawings, or as from time to time amended by mutual consent of the parties hereto, not less than 500 and not more than 7,500 additional insulators. From 400 to 600 are to be delivered complete each month. The Commisison may, at its option, postpone first delivery under any such contract until 1st May, 1910. A Surety Company Bond is to be given for 25 per cent. of the amount of any such contract.

(3) The Commission agrees to pay to the Contractor for the said Insulators $965 per hundred, in carload lots of not less than 350 insulators, and $977 per hundred in less than carloads lots. It is hereby understood that a carload lot may consist of both types of insulators when a total of 400 are shipped at any one time.

(4) It is further agreed:—

(*a*) For all purposes of this contract, notices shall be served upon the Engineer, or his appointee, in writing for the Commission, and upon the Secretary of the Contractor, or his appointee, in writing.

(*b*) All the rights and remedies of the Commission and of the Engineer, acting on their behalf, may be exercised and continued concurrently or in the alternative.

(*c*) Time shall be of the essence of this agreement.

(*d*) In case any municipal corporation which shall contract with the Commission for a supply of power or any person, firm or corporation or with the Commission for a supply of power, shall suffer damage by reason of the breach of this contract by the Contractor, and such municipal corporation, firm, person or corporation would, if the Contractor had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy the Commission shall be entitled to commence any such proceedings or bring such action in any Court in the Province of Ontario, for or on behalf of such municipal corporation, person, firm or corporation, and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjusted to be paid if such proceeding or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

(*e*) In case either of the parties shall, at any time or times, be unable to perform this contract, by strike, lock-out, riot, fire, explosion, act of God, war, or any other cause reasonably beyond their control, then the Contractor shall not be bound to deliver and/or the Com-

mission shall not be bound to accept Insulators during such time, but the parties shall be prompt and diligent to remove the cause or causes of interruption in so far as they are able, and when such interruption has ceased the parties shall be prompt and diligent to perform the contract. Provided that if such interruption is, or is likely to be unreasonable, the arbitrators may determine that the parties shall be released from this contract.

(*f*) If any difference shall arise during the progress of the work, as to any matter or thing arising under or out of this contract, such difference shall be referred to two arbitrators, one to be chosen by each of the parties hereto, and they shall choose a third arbitrator, but if they cannot agree such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible the arbitrators shall decide such difference in a summary manner. Either party may appeal from any award of the arbitrators, as provided by the Arbitration Act, R.S.O., Chap. 62, but no such appeal shall be carried beyond the decision of the Court of Appeal of Ontario. The arbitrators shall not consider any difference or matter which is to be decided by the engineer, or as to the grounds upon which, or mode in which, any opinion may have been forced or discretion exercised by the engineer.

(*g*) This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the said parties.

IN WITNESS WHEREOF.

.....

.....

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.....

(3) Cable Clamps and Sleeves.

The transmission line cables will be attached to the insulator by means of clamps specially designed for the purpose. Two types of clamps are required, one for the suspension insulators, and the other for the strain insulators. The suspension clamp is a malleable iron casting with supporting grooves and carries a bolted cast clip for gripping the cable. Surrounding the cable is an aluminum sleeve formed of 1-16-inch plate which serves to protect it from any cutting or abrasion by the clamp.

The clamp also carries two sheet iron covers or shields which project over the cable at each end of the clamp to prevent short circuits from burning the cable, in case an insulator should fail or flash over.

The strain insulator clamps are formed of two plates of steel ¼-inch thick bolted together and carrying grooves to receive the cable. Aluminum sleeves are also provided for these clamps to protect the cable from cutting. All clamps are galvanized.

Specifications and drawings have been prepared covering the above clamps and sleeves, upon which tenders were received, and contracts have been let for their manufacture as follows:—

12,000 Malleable Iron cable clamps for suspension type insulators to the Galt Malleable Iron Company, Galt, Ont., for the sum of $6,602, delivered f.o.b. railroad sidings as required.

12,000 Aluminum sleeves for the above to W. H. Banfield & Sons, 120 Adelaide Street West, Toronto, for the sum of $481.75, delivered to sidings as required.

4,000 Pressed steel cable clamps for strain insulators to Mr. W. H. Dunne, 1492 Queen Street West, Toronto, for the sum of $2,149, delivered to sidings as required.

4,000 Aluminum Sleeves for pressed steel clamps to Mr. W. H. Dunne, for the sum of $265, delivered to sidings as required.

The tenders for cable clamps follow:—

Form of Tender Attached to Specifications for Malleable Iron Cable Clamps.

..... the undersigned, hereby offer the Hydro-Electric Power Commission of Ontario to furnish all the necessary materials, labor, tools, machinery and other plant, and to execute and complete in a satisfactory and workmanlike manner all work required in connection with the manufacture, testing and shipment of Malleable Iron Cable Clamps, all according to the specifications and drawings exhibited to ..... at the following prices:—

Black Castings for 12,000 clamps, thoroughly cleaned and ready for galvanizing, for the sum of ..... dollars ($) f.o.b. factory, or for the sum of ..... dollars ($) f.o.b. Toronto, or at the rate of ..... cents (c.) per pound at factory, or .... cents (c.) per pound f.o.b. Toronto.

Castings for 12,000 clamps thoroughly cleaned and galvanized according to specifications for the sum of ..... dollars ($), delivered f.o.b railway sidings, or at the rate of ..... cents (c.) per pound ..... further offer to supply 12,000 clamps complete with bolts, nuts and sheet iron covers, not galvanized, for the sum of ..... dollars ($) f.o.b. factory, or for the sum of ..... dollars ($) f.o.b. Toronto.

Or 12,000 clamps complete as above, but galvanized on all parts, for the sum of ..... dollars ($) f.o.b. railway sidings.

The necessary bolts and nuts for 12,000 clamps, not galvanized, for the sum of ..... dollars ($) f.o.b. Toronto, or the sum of .... dollars ($) f.o.b. railway sidings, or at the rate of .....cents (c.) per pound f.o.b. sidings.

The necessary bolts and nuts galvanized for 12,000 clamps for the sum of ..... dollars ($) f.o.b. Toronto, or for the sum of ..... dollars ($) f.o.b. railway sidings, or at the rate of ..... cents (c.) per pound f.o.b. sidings.

Black Sheet Iron Covers at the rate of ..... dollars
($) per 100 f.o.b. Toronto, or at the rate of ..... dollars
($) per 100 f.o.b. railway sidings, or at the rate of ..... cents
(c.) per pound f.o.b. sidings.

Galvanized Sheet Iron Covers at the rate of ..... dollars
($) per 100 f.o.b. Toronto, or at the rate of ..... dollars
($) per 100 f.o.b. railway sidings, or at the rate of ..... cents
(c.) per pound f.o.b. sidings.

.....estimate that one clamp will weigh ..... pounds for the castings, ... pounds for the bolts, and each pair of covers will weigh ..... pounds.

..... guarantee to ship the first 100 clamps within ..... weeks on receipt of order, and to regularly ship each week thereafter not less than .....clamps.

..... further hold ..... ready to enter into a Contract in form satisfactory to the Commission for the due and proper execution of the work at the rates and on the terms herein stated, and ..... further agrees to furnish securities for the due performance of the Contract in a bond for 25 per cent. of the amount of the entire contract with satisfactory sureties. ..... herewith enclose an accepted bank cheque payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario, for the sum of ..... dollars ($), being 5 per cent. of the amount of the entire contract.

..... hereby certify that ..... have carefully investigated all conditions and items of cost which may or can possibly enter into the cost of the work to .....

Signed.....

P. O.....

.....

.....

Dated .....

AUGUST, 1909.

TENDERS FOR MALLEABLE IRON CABLE CLAMPS.

12,000 Clamps.	Condition.	F.O.B.	Pratt & Letchworth. Rate per lb.	Pratt & Letchworth. Total.	Galt Malleable Iron Co., Galt, Ont. Rate per lb.	Galt Malleable Iron Co., Galt, Ont. Total.
				$ c.	c.	$ c.
Castings only cleaned....	Not Galv ...	Factory.....	5.87	3,872.00	5.85	3,861.00
Castings only cleaned....	Not Galv ..	Toronto.....	6.07	3,998.00	6.05	3,993.00
Castings cleaned.....	Galvanized.	Ry. Sidings.	7.77	5,122.00	7.75	5,115.00
Clamps complete with bolts, nuts and sheet iron covers.....	Not Galv ...	Factory.....	.....	5,190.00	.....	5,182.00
Clamps complete with bolts, nuts and sheet iron covers.....	Not Galv ...	Toronto.....	.....	5,350.00	.....	5,345.00
Complete clamps.....	Galvanized..	Ry. Sidings.	.....	6,611.00	.....	6,602.00
Bolts and nuts only....	Not Galv ...	Toronto...	5.75	551.00	5.56	546.00
		Ry Sidings		572.00		567.00
	Galvanized..	Toronto...	6.4	668.00	6.38	661.00
		Sidings...		687.00		683.00
Sheet iron covers.	Not Galv ..	Toronto...	5.63	660.00	5.60	650.40
		Sidings...		681.60		672.00
	Galvanized..	Toronto...	6.35	902.40	6.33	888.00
		Sidings...		921.60		912.00
Estimated weight of one clamp:				Pounds.		Pounds.
Castings..				5.25	.....	5.5
Bolts.....				.8924	.....	.8925
Covers per pair.....				1.20	.....	1.20
Total.....				7.3424	.....	7.5925
First shipment of 100 clamps.....				6 Weeks	.....	5 Weeks
Weekly shipments.....				250 Clps.	.....	200 Clamps.

Form of Tender Attached to Specifications for Pressed Steel Cable Clamps.

..... the undersigned, hereby offer the Hydro-Electric Power Commission of Ontario to furnish all the necessary materials, labor, tools, machinery and other plant, and to execute and complete in a satisfactory manner all work required in connection with the manufacture, testing and shipment of Pressed Steel Cable Clamps, all according to the Specifications and drawings exhibited to ..... at the following prices:—

Pressed Steel Plates for 4,000 clamps, with all machine work but without bolts, thoroughly cleaned and ready for galvanizing, for the sum of .... dollars ($) f.o.b. factory, or for the sum of .... dollars ($) f.o.b. Toronto, or at the rate of ..... cents (c.) per pound f.o.b. factory, or .....cents (c.) per pound f.o.b. Toronto.

Pressed Steel Plates for 1,000 clamps, thoroughly cleaned and galvanized according to the specifications, for the sum of .....dollars ($) delivered f.o.b. railway sidings, or at the rate of ..... cents (c.) per pound.

..... further offer to supply the necessary bolts and nuts for 1,000 clamps, not galvanized, for the sum of .....dollars ($) f.o.b. Toronto, or for the sum of .....cents (c.) per pound.

The necessary bolts and nuts for 1,000 clamps, galvanized, for the sum of ..... dollars ($) f.o.b. Toronto, or for the sum of ..... dollars ($) f.o.b. railway sidings, or at the rate of ..... cents (c.) per pound f.o.b. Toronto, or ..... cents ($) f.o.b. railway sidings.

..... further offer to supply 4,000 clamps complete with bolts and nuts, and galvanized as specified, for the sum of ..... dollars ($) f.o.b. railway sidings.

..... estimate that the pressed steel plates will weigh ..... pounds not galvanized, and that the necessary bolts will weigh ..... pounds.

..... guarantee to ship the first 100 clamps complete within four weeks on receipt of order, and to regularly ship each week thereafter not less than 150 clamps.

..... further hold ..... ready to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work at the rates and on the terms herein stated, and ..... further agree to furnish security for the due performance of the Contract in a Bond for 25 per cent. of the amount of the entire Contract with satisfactory sureties.

..... herewith enclose an accepted bank cheque payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario for the sum of ..... dollars ($), being 5 per cent. of the amount of the entire contract.

.....hereby certify that ..... have carefully investigated all conditions and items of cost which may or can possibly enter into the cost of the work to .....

Signed .....

P. O. Address .....

.....

.....

Dated .....

Dated Aug. 31, 1909

COMPARISON OF PRICES SUBMITTED FOR PRESSED STEEL CLAMPS FOR STRAIN INSULATORS,

BY

CANADA FOUNDRY COMPANY, AND MR. W. H. DUNN.

Item.	Canada Fdy. Co	W. H. Dunn.
Black Plates (Pressed Steel):		
For 1,000 clamps, F.O.B. Factory	$1,375 00	$1,172 00
For 1,000 clamps, F.O.B. Toronto	1,375 00	1,172 00
Rate per lb., Factory	.04	.06½
Rate per lb., Toronto	.04	.06½

Strain Cable Clamp.

Galvanized Plates:		
For 4,000 clamps, F.O.B. Sidings	$1,904.00	$1,587.00
Rate per lb., Sidings	.05½	.08.8
Bolts and Nuts, Not Galvanized:		
For 4,000 clamps, F.O.B. Toronto	$338.00	$543.00
Rate per lb., F.O.B. Toronto	.04.45	.06.8
Bolts and Nuts, Galvanized:		
For 4,000 clamps, F.O.B. Toronto	$421.50	$675.00
For 4,000 clamps, F.O.B. Sidings	445.00	705.00
Rate per lb., Toronto	.05.45	.08.25
Rate per lb., Sidings	.05.77	.08.5
Clamps, Complete, Galvanized:		
For 4,000 clamps, F.O.B. Sidings	$2,531.00	$2,149.00
Weights:		
Plates, not galvanized, total	34,375 lbs.	18,000 lbs.
Bolts, not galvanized, total	7,600 lbs.	8,000 lbs.
Shipments:		
First 100	4 wks. of receipt of order.	4 wks. of receipt of order.
Rate per week afterwards	150 clamps.	150 clamps.

August 31st, 1909.

COMPARISON OF PRICES SUBMITTED FOR ALUMINUM SLEEVES FOR STRAIN INSULATOR CABLE CLAMPS.

BY

W. H. BANFIELD AND PARKE & LEITH.

Item.	W. H. Banfield.	Parke & Leith.	W. H. Dunn.
For 4,000 A1 Sleeves, F.O.B., Sidings	$269.50	$270.00	$265.00
Rate per lb.	.60⅔	.80	.56
Shipments:			
First 500	5 wks. of receipt of order.	5 wks. of receipt of order.	4 wks. of receipt of order.
Rate afterwards	150 per week.	150 per week.	150 per week.

(4) POLE LINES.

Several municipalities whose requirements for power will not warrant the installation of separate step-down stations are to be supplied from the stations of adjacent municipalities, as follows:—

Ingersoll	to be supplied from	Woodstock	Station.
Galt	" " "	Preston	"
Hespeler	" " "	"	"
Waterloo	" " "	Berlin	"
New Hamburg	" " "	"	"

A wooden pole line construction located on highways will be used for carrying the necessary circuits, which will operate at 13,200 volts except in the cases of Galt and Hespeler, where the voltage will be 6,600.

In addition to the above, pole lines at 13,200 volts will be required to transmit power to the City of London from the Commission's step-down transformer station, which is located approximately three miles from the centre of the city.

Specifications and drawings have been issued covering the construction of the several pole lines complete, and these have been sent out to various firms of contractors in position to supply the necessary materials in whole or in part, and prices have been received for poles, cross arms, insulators and conductor.

Form of Tender Attached to Specifications for the Construction of Low Tension Distribution Lines.

..... the undersigned, hereby offer the Hydro-Electric Power Commission of Ontario to furnish all necessary materials, labor, tools, machinery and other plant, and to build, erect and complete in a satisfactory and workmanlike manner all work required in connection with the construction of Low Tension Distribution Lines at or near the cities and towns specified, all according to the specifications and drawings exhibited to ..... at the following prices:—

..... hereby do offer and agree to construct the Distribution Lines complete, comprising Double Circuit Poles and two three-phase circuits of copper of the sizes specified, including single circuit Telephone Lines of two wires and Ground Cable for the sum of ..... dollars ($), or similar lines with two three-phase circuits of aluminum of the sizes specified, for the sum of ..... dollars ($).

..... hereby offer and agree to construct the several sections of Distribution Lines complete at the following prices per mile:—

Double Circuit Wooden Pole Lines, including Single Circuit Telephone Line and Ground Cable and equipped with:

0000 B. & S. Gauge Copper Cable at	.....	Dollars ($	) per mile.
2 B. & S. " " " "	.....	Dollars ($	" "
4 B. & S. " " " "	.....	Dollars ($	" "
345,000 C.M. Aluminum Cable "	.....	Dollars ($	" "
0 B. & S. Aluminum Cable "	.....	Dollars ($	" "

..... hereby offer and agree to construct the several pole lines complete including insulators ready for the erection of all conductors and ground cable at the rate of ..... dollars ($) per mile, using poles exactly as specified, or at the following rates per mile, based on the following changes:—

The use of poles with 8-inch tops and having a maximum sweep of 6 inches from the top of pole to within 5 feet of butt, at the rate of ..... dollars ($) per mile.

The use of poles with 7-inch tops and a sweep of 3 inches at the rate of ..... dollars ($) per mile.

The use of poles with 7-inch tops and a sweep of 6 inches, at the rate of ..... dollars ($) per mile.

..... hereby offer and agree to supply and erect wires and cables for the following prices per mile for single wire or cable.

0000 B. & S. Gauge Copper Cable at	.....	Dollars ($	) per mile
2 " " " " "	.....	Dollars ($	) "
4 " " " " "	.....	Dollars ($	) "
345,000 C.M. Aluminum Cable "	.....	Dollars ($	) "
0 B. & S. Aluminum Cable "	.....	Dollars ($	) "
10 B. & S. Copper Telephone Wire	.....	Dollars ($	) "
No. Galvanized Steel Ground Cable	.....	Dollars ($	) "

..... hereby offer and agree to receive wire and cables f.o.b. cars at railway sidings, to unload, distribute and erect same on poles, for the following prices per mile for single wire or cable:—

0000 B. & S. Gauge Copper Cable at ..... Dollars ($)
2 " " " " " ..... Dollars ($)
4 " " " " " ..... Dollars ($)
345,000 C.M. Aluminum Cable " ..... Dollars ($)
0 B. & S. Gauge Aluminum Cable at ..... Dollars ($)
10 B. & S. Copper Telephone Wire " ..... Dollars ($)
¼ in. Galvanized Steel Ground Cable..... Dollars ($)

..... further agree in case the Commission requires similar lines to be erected in the vicinity of Stratford, St. Mary's, St. Thomas or Hamilton, to construct the same in accordance with the plans and specifications and at the same prices per mile as stated above.

..... further hold ..... ready to enter into a Contract in form satisfactory to the Commission for the due and proper execution of the work at the rates and on the terms herein stated and ..... further agree to furnish security for the due performance of the Contract in a bond for 25 per cent. of the amount of the entire contract with satisfactory sureties.

..... herewith enclose an accepted bank cheque payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario for the sum of ..... dollars ($), being 5 per cent. of the amount of the entire contract.

..... hereby certify that ..... have carefully investigated all conditions and items of cost which may be or can possibly enter into the cost of the work to .....

Signed .....

P. O. Address.....

.....

.....

Dated .....

(5) Underground Power Cables.

Cables and Conduits for Connection with the Ontario Power Company.

During the summer surveys were made at Niagara Falls along Murray Street, which had been determined upon as the most direct and feasible route for the connecting system between the Distributing Station of the Ontario Power Company and the Commission's step-up Transformer Station. In the meantime general specifications were being prepared and drawings issued, which, when completed, were sent out to all contractors known to undertake this kind of work, both in Canada and the United States. Tenders were received from three parties, and later the contract was let to Canadian Contracts, Limited, of Toronto, who were by far the lowest bidders.

The conduit system to be constructed will consist of two sections of 10 ducts each, paralleling each other in the same trench and 18 inches apart, the total length being approximately 2,000 feet. Seven manholes will be provided and spaced about 300 feet. These are required for jointing the cables to be placed in the ducts. The Contract with the Ontario Power Company provides that they shall transmit the power purchased by the Commission to their boundary line just east of the Michigan Central Railroad tracks. For this distance (300 feet) the above Company will provide a similar conduit system and install the necessary cables to connect with the Commission's system.

To cross under the tracks of the Michigan Central Railroad Company an order from the Board of Railway Commissioners is necessary and steps have been taken to obtain this.

Cables.

The first installation to supply three banks of transformers will require six cables. These shall be of the three-conductor, lead-covered type and are to operate at 12,000 volts. Specifications were written and sent out to all the known manufacturers in Europe and America. Tenders will be received on November 1st.

Form of Tender Attached to Specifications for Three-Conductor 12,000 Volt Cables.

....., the undersigned, do hereby offer to the Hydro-Electric Power Commission of Ontario to furnish all the necessary materials, labor, implements, tools, machinery, and other plant, and to execute and complete all works mentioned and described, in a satisfactory manner, for 12,000 volt cables, in accordance with the accompanying plans and specifications, and at the following prices:—

..... hereby offer and agree to furnish approximately 13,300 feet of three-conductor 12,000 volt cable in lengths from 280 to 360 feet as required, to unload same from cars, and complete the installation in every particular ready for service for the sum of ..... dollars ($).

..... hereby offer and agree to furnish approximately 13,300 feet of three-conductor cable in lengths from 280 to 360 feet on reels f.o.b. cars Niagara Falls, Ontario, with all duty paid at a price of ..... dollars ($) per foot, and estimate that the freight and duty charges will amount to ..... dollars ($) per foot.

The cable which ..... offer will be of the ..... insulation type and meets the accompanying specifications of the Commission in every particular, and ..... herby guarantee the same for a period of five years against faulty materials or workmanship in accordance with the guarantee set forth in the specifications.

Characteristics of cable are as follows:—

Diameter of conductors	inches
Thickness of insulation around each conductor	inches
Thickness of insulation around group	inches
Thickness of lead sheath	inches
Outside diameter	inches
Weight per foot	pounds
Electro-static capacity per mile between conductors	micro-farads
" " between conductors and lead sheath	micro-farads
Least radius of bending at 40° Fahr.	inches
Minimum temperature for safe installation	Degrees Fahr.

The insulating compound used in cable bells and joints will be .... which will not carbonize or otherwise deteriorate from the effects of heat or high voltage, or both. Samples of cable and insulating compound are submitted herewith in accordance with the requirements of this specification.

..... guarantee that the insulation of the cables will not deteriorate under a continuous temperature of 150 deg. Fahr.

..... hold ..... ready promptly to enter into a Contract in form satisfactory to the Commission for the due and proper execution of this work for the sum and on the terms herein stated, and ..... further agree to furnish security for the due performance of the Contract in the form of a Bond for twenty-five per cent. of the amount of the entire Contract with sureties to the satisfaction of the Commission.

..... herewith enclose an accepted bank cheque, payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario for the sum of ..... dollars ($), being 5 per cent. of the amount of the tender.

.....hereby offer and agree, should the Contract be let to .... to complete shipment within two months after date of notification from the Engineer to begin, manufacture, and to hand the entire work specified over to the Commission ready for operation within three months after such notification.

..... hereby certify that ..... are familiar with the conditions under which the Commission expect to operate the cables, and have investigated all items of cost which may or can enter into the cost of the work to ..... or the amount of tender submitted.

Signed .....

P. O. Address .....

.....

.....

Dated at .....

..... 1909.

Form of Tender Attached to Specifications for Tile Conduit System for 12,000 Volt Cable at Niagara Falls.

..... the undersigned, do hereby offer the Hydro-Electric Power Commission of Ontario, to furnish all necessary materials, labor, tools, machinery and other plant, and to execute and complete the construction of the Conduit System as described, in a satisfactory manner, in accordance with the accompanying Specifications, and at the following prices:—

..... hereby offer and agree to install the two sections of conduit as specified, together with all manholes complete, including concrete shelves, and all equipment with the exception of cast iron covers and framing for covers for the sum of ..... dollars ($), providing the tile ducts are supplied by ..... or for the sum of ..... dollars ($) if the ducts are supplied by the Commission.

..... hereby offer to install a single section of conduit throughout, together with all manholes completely equipped except for cover materials, for the sum of..... dollars ($), if.....furnish the tile ducts, or for the sum of.....dollars ($), if the ducts are supplied by the Commission.

.....offer to make a reduction of.....dollars ($) for each section of ducts if ducts are protected with 4 inch walls of concrete throughout.

We offer the necessary 4¼ inch split tile ducts for protecting cables on manhole shelves for .....cents per duct foot.

..... herewith ..... sending samples of tile ducts as required under the specifications.

.....guarantee the entire construction against defective materials or workmanship on our part, and agree to make any such defects good without cost to the Commission at any time within one year from date of acceptance.

The brand of cement we propose using for the work will be....., manufactured by..... at .....

.....hold.....ready promptly to enter into a contract in form satisfactory to the Commission for the due and proper execution of this work for the sum and on the terms herein stated, and ..... further agree to furnish security for the due performance of the contract in the form of a bond for twenty-five per cent. of the amount of the entire contract, with sureties to the satisfaction of the Commission.

.....herewith enclose an accepted bank cheque, payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario, for the sum of.....dollars ($), being 3 per cent. of the amount of the Tender.

.....hereby certify that..... are familiar with the conditions under which the conduits are to be installed, and have investigated all items of cost which may or can enter into the cost of the work to.....

Signed.....

P. O. Address.....

.....

.....

Dated at.....

.....1909.

(6) Telephone and Relay Lines.

In the specification for transmission lines it was provided that two telephone circuits should be erected between Niagara Falls and Dundas and one circuit paralleling the transmission lines of the remainder of the system. Later, when the question of automatic relay protection was taken up, the Westinghouse Company proposed a scheme which involved the use of two pilot wires to connect adjacent stations in which oil circuit breakers were to be located to divide the transmission lines into sections. This proposition was favorably considered and the contract let along with the contracts for station apparatus.

The pilot wires for connecting the several stations will be carried on the telephone poles in the same manner as the telephone circuits.

Specifications have been drawn up covering the construction of the pole lines to carry the telephone and relay circuits. The addition of the relay circuits has necessitated a change in cross arm construction on part of the lines and additional cross arms on the remainder. The F. H. McGuigan Construction Company submitted prices for the additional work, which were accepted. A contract has been entered into which covers these changes, also the completion of the relay circuits in every particular, except the supply of the necessary copper conductors, which will be furnished by the Commission. Specifications for this work follow.

Copper Wire for Relay Circuits.

As the copper wire for relay lines was to be furnished by the Commission, specifications were drawn up for the supply of same, and tenders were called for. Specifications and tabulated tenders follow. After due consideration, the contract was awarded to the Dominion Wire Manufacturing Co., of Montreal, for $23,209.25.

Form of Tender Attached to Specifications for Hard Drawn Copper Wire for Protective Relay Circuits.

....., the undersigned, hereby offer to furnish to the Hydro-Electric Power Commission of Ontario all the necessary materials, labor, machinery and equipment and to execute and complete in a satisfactory manner all the works required in the manufacture, testing and delivery of "Hard Drawn Copper Wire for Protective Relay Circuits," all according to specifications exhibited to .....and will supply.....( ) pounds of Hard Drawn Copper Wire at a price of.....cents per pound avoirdupois.

..... hereby offer and agree to furnish and deliver twenty thousand pounds of wire, all in accordance with the specifications and satisfactory to the Engineer within.....weeks after the execution of the contract and deliver .....pounds per week for succeeding weeks, until the amount contracted for is delivered.

.....further hold.....ready promptly to enter into a contract in form satisfactory to the Chairman of the Hydro-Electric Power Commission of Ontario for due and proper execution of the work at the rates and on the terms herein stated, and.....further agree to furnish security for the due performance of the contract by a bond for .....dollars ($) with satisfactory sureties as specified.

.....herewith enclose an accepted bank cheque, payable to the order of the Chairman of the Hydro-Electric Power Commission, for the sum of..... dollars ($), as required in the "Instructions to Bidders," dated May .....

.....hereby certify that.....have carefully investigated all items of cost which do or can possibly enter into the cost of the work to.....

Signed.....

P. O. Address.....

.....

.....

Dated at.....

.....

TENDERS FOR HARD DRAWN COPPER RELAY WIRE.

CALLED FOR MONDAY, MAY 10TH, 1909.

For use between	Size.	Lbs.	Eugene F. Phillips Electrical Works.		Wire and Cable Company, Montreal.		Dominion Wire Manufacturing Company.	
			Price per 100 lbs	Total.	Per 100.	Total.	Per 100.	Total.
	No.		$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Niagara Falls & Dundas.	8	60,800	14 85	9,028 80	14 85	9,028 80	14 85	9,028 80
Dundas and Toronto	9	34,040	14 85	5,054 94	14 85	5,054 94	14 85	5,054 94
Dundas and Woodstock..	9	21,400	14 90	3,188 60	14 90	3,188 60	14 85	3,177 90
Woodstock and London..	11	7,260	14 90	1,081 74	14 90	1,081 74	14 90	1,081 74
London and St. Thomas.	12	3,280	14 90	488 72	14 90	488 72	14 90	488 72
Dundas and Guelph	11	7,000	14 85	1,039 50	14 85	1,039 50	14 90	1,043 00
Guelph and Preston.....	12	2,820	14 90	420 18	14 85	418 77	14 85	418 77
Berlin and Preston	12	1,780	14 90	265 22	14 90	265 22	14 85	264 33
Berlin and Stratford....	11	8,260	14 90	1,230 74	14 90	1,230 74	14 85	1,226 61
Stratford and St. Mary's.	12	2,600	14 90	387 40	14 90	387 40	14 90	387 40
St. Mary's and London..	11	6,960	14 90	1,037 04	14 90	1,037 04	14 90	1,037 04
Total.....	.....	156,200	.....	23,222 88	.....	23,221 47	.....	23,209 25
First shipment of 20,000 lbs			One week		Two weeks.....		Two or three weeks.	
Shipments per week..			50,000 lbs.....		50,000 lbs.....		20,000 lbs. or more.	

SUBMARINE AND UNDERGROUND CABLES FOR TELEPHONE AND RELAY CIRCUITS.

Specifications have been prepared for submarine cables to carry the telephone and relay circuits across the Welland Canal near Allenburg, also for underground cables of similar character to be used where the high voltage transmission lines of the Toronto and Niagara Power Co. are crossed in Pelham and Toronto Townships. The cables are designed for operation at 6,600 volts and may be used in either the telephone or relay circuits as occasion may require. Two cables are to be installed at each crossing, one for normal operation on each set of circuits.

These specifications were sent out with request for tenders along with the specifications for three-conductor 12,000 volt cables mentioned elsewhere, and tenders have been received from several firms well qualified to carry out the work of installation as well as of manufacture.

Form of Tender Attached to Specifications for Submarine and Telephone and Relay Cables.

....., the undersigned, do hereby offer to the Hydro-Electric Power Commission of Ontario to furnish all the necessary materials, labor, implements, tools, machinery and other plant, and to execute and complete all the work mentioned and described in a satisfactory manner, for submarine and underground cables, in accordance with the accompanying plans and specifications, and at the following prices:—

.....hereby offer and agree to furnish approximately 1,170 feet of six-conductor submarine cable in lengths as required, to unload same from cars, and complete the installation in every particular ready for service for the sum of .....dollars ($).

.....hereby offer and agree to furnish approximately 1,170 feet of six-conductor submarine cable in lengths as required, f.o.b. cars Allenburg, Ontario, with all duty paid, at the price of .....dollars ($), and estimate that the freight and duty charges will amount to.....dollars ($).

.....hereby offer and agree to furnish approximately 850 feet of six-conductor underground cable in lengths as required, to unload same from cars, and complete the installation in every particular ready for service for the sum of..... ..... dollars ($).

.....hereby offer and agree to furnish approximately 850 feet of six-conductor underground cable, in lengths as required, f.o.b. cars Silverdale and Islington, Ontario, with all duty paid, at the price of.....dollars ($), and estimate that the freight and duty charges will amount to..... dollars ($).

The cable which.....offer will be in accordance with the implied requirements in every particular.

Characteristics of the cable are as follows:—

Weight of cable per foot, submarine.....pounds.
Weight of cable per foot, underground.....pounds.
Outside diameter of cable, submarine.....inches.
Outside diameter of cable, underground.....inches.
Size of reels.....inches by.....inches.
Greatest shipping weight of reels.....pounds.
Capacity of cables per mile.....M.F.
Least radius of bending.....inches.

Samples of each kind of cable and photographs showing pot heads of terminal boxes are furnished herewith in accordance with the specifications.

.....guarantee that the cables will not deteriorate or become inoperative for a period of five years from date of installation through faulty materials or workmanship on.....part, and.....agree to replace any cables becoming inoperative for such reason.

.....hold.....ready promptly to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work for the sum and on the terms herein stated, and.....further agree to furnish security for the due performance of the contract in the form of a bond for twenty-five per cent. (25%) of the amount of the entire contract, with sureties to the satisfaction of the Commission.

.....hereby enclose an accepted bank cheque, payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario, for the sum of ..... dollars ($), being 5 per cent. of the amount of the tender.

.....hereby offer and agree, should the contract be let to.....to complete shipment within six weeks from receipt of order, and to install same if required to do so, within two weeks of said date.

.....hereby certify that.....have investigated all items of cost which may or can enter into the cost of the work to.....

Signed.....

P.O. Address.....

.....

.....

Dated at.....

.....1909.

Footing Gang Setting Footings by means of Special Template, to which the Four Footings are bolted.

Standard Tower Assembled. Ready for Erection.

II. CONSTRUCTION—NIAGARA DISTRICT.

Preliminary Surveys—Niagara District.

Right of Way.

At the close of 1908 the following routes for the 110,000 volt transmission lines had been surveyed:

	Distance in Miles.
Section A, Niagara Falls to Dundas	51.5
" B, Dundas to Toronto city limits	36.4
" C, Dundas to western limits of Brantford Township	27.9
" D, Brantford Township to Woodstock	16.6
" E, Woodstock to London	25.5
" F, Dundas to Guelph	25.4
" G, Guelph to Stratford through Preston and Berlin	44.0

These still remained:—

" H, Stratford to London through to St. Mary's	37.3
" I, London to St. Thomas	13.4

One survey party, consisting of an engineer and an average of three chainmen, has been engaged in this work. In the past ten months the party has completed these surveys, together with special surveys of some 90 crossings of canals, railways, telephone lines, telegraph lines and transmission lines.

Special surveys have also been made of a number of sections of the line where unusually long spans were required, as well as surveys of ten station sites, thus completing all preliminary surveys of the 110,000 volt system, excepting that within the limits of the City of Toronto.

Organization.

At the beginning of January, 1909, there were four right-of-way agents in the field, under the direction of an engineer. This organization continued to the middle of February, when arrangements were made for paying for right-of-way, and all right-of-way work was placed under the supervision of the Solicitor for the Commission, one of the former agents being appointed as his assistant to direct the work. At this time the head right-of-way agent was in charge of two others, which number was later increased to eight, the new men being chiefly engaged in arranging with owners for payment for right-of-way privileges and for the cutting of trees.

After the middle of summer the number of agents was gradually reduced, the number at present being four, with a fifth in charge.

Progress of Work.

At the beginning of the year only a portion of the lines had been canvassed for right-of-way. Along this portion, agreements had been made for the right to erect and maintain towers and lines, to patrol, and the right to remove trees and underbrush, but no arrangements had been made for the work of clearing. Since it had been agreed that owners retain the timber, it was deemed advisable to have them do the cutting, and although to make the agreements for this cutting necessitated extra work for the buyers, it proved to be the most satisfactory arrangement for both parties.

Owing largely to the agitation caused by opponents of the power scheme, the work of securing right-of-way has been difficult. Directly and indirectly, through the influence of such, the owners have been induced not only to refuse to make arrangements for right-of-way, but also to refuse the Commission access to right-of-way for which agreements had previously been made.

Notwithstanding these difficulties, progress has been made. During the past ten months agreements have been made for 94 miles of right-of-way not heretofore obtained, and for the cutting of timber along 211 miles of the line. Nine properties, comprising a total of about 45 acres, have been purchased for sites for interswitching and transformer stations, also right-of-way for some 23 miles of telephone line through private property has been obtained.

The greater portion of the above right-of-way and property has been paid for and is in the hands of the Commission.

Tower Lines—Field Organization.

The engineering work in the field is under the direct supervision of the Field Engineer in charge of construction. The work in each section is in charge of a Resident Engineer, under whom is a transitman and also the Inspectors in charge of various branches of construction.

Before construction work is started in any section, the Resident Engineer is supplied with the necessary transmission line plans and data, and the transitman, with a party of two to four men, covers the section and stakes out the location of the towers. The Contractor then places a gang in the field to excavate foundation pits upon the locations established by the survey party. Following this is a second gang, which sets the steel footings; this is in turn followed by a gang which assembles the steel for the towers. A gang then follows with the necessary apparatus for raising the assembled towers to their final position and bolting them to the footings.

Every construction gang, with the exception of the digging gangs, is accompanied by an Inspector, who supervises the details of construction in the interests of the Commission.

Daily progress reports are sent to the Toronto office by Inspectors, and also weekly reports, which are prepared under the supervision of, and signed by, the Resident Engineer. From these reports, tables, diagrams and curves are compiled by the office staff, which allow a close check to be kept on the progress of the work in all parts of the system.

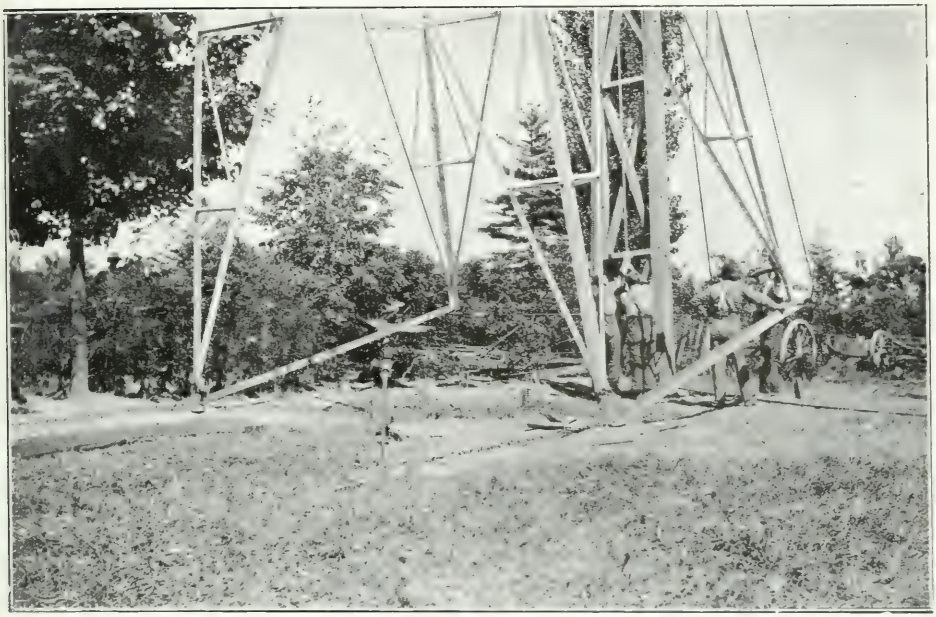
Progress of Construction.

The first tower was erected on July 22nd, 1909, near Rymal in the Township of Glanford, and since then the work has been progressing steadily. Up to October 31st, 1909, the work done on the transmission line is as follows:

SECTION A.—NIAGARA FALLS-DUNDAS.

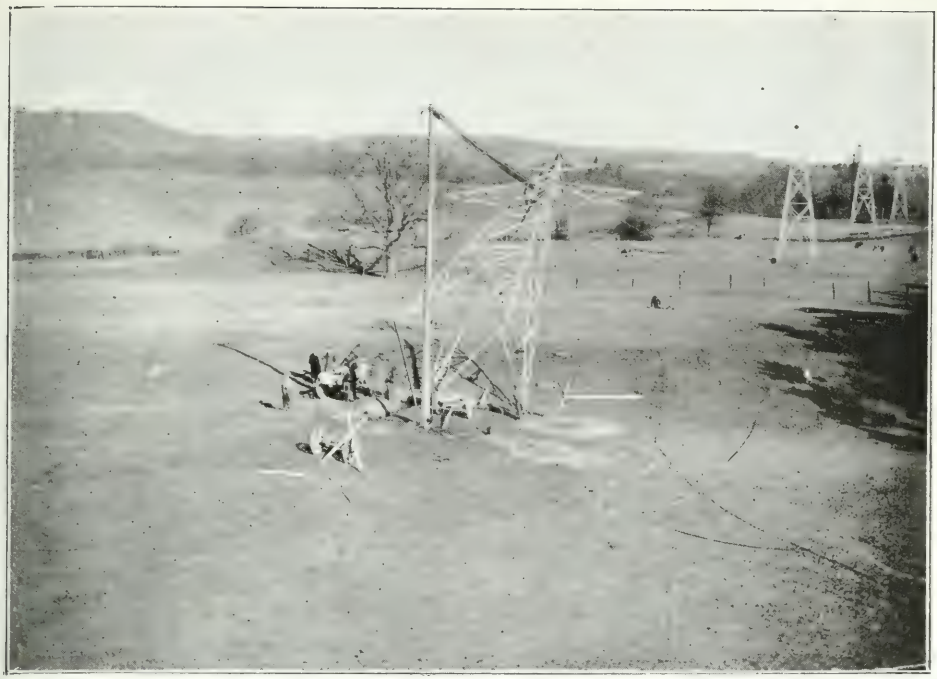
Total distance—51.5 miles.

Total number of towers required	573
" " " " delivered to date	354
" " " " erected to date	276
" " " footings set	296

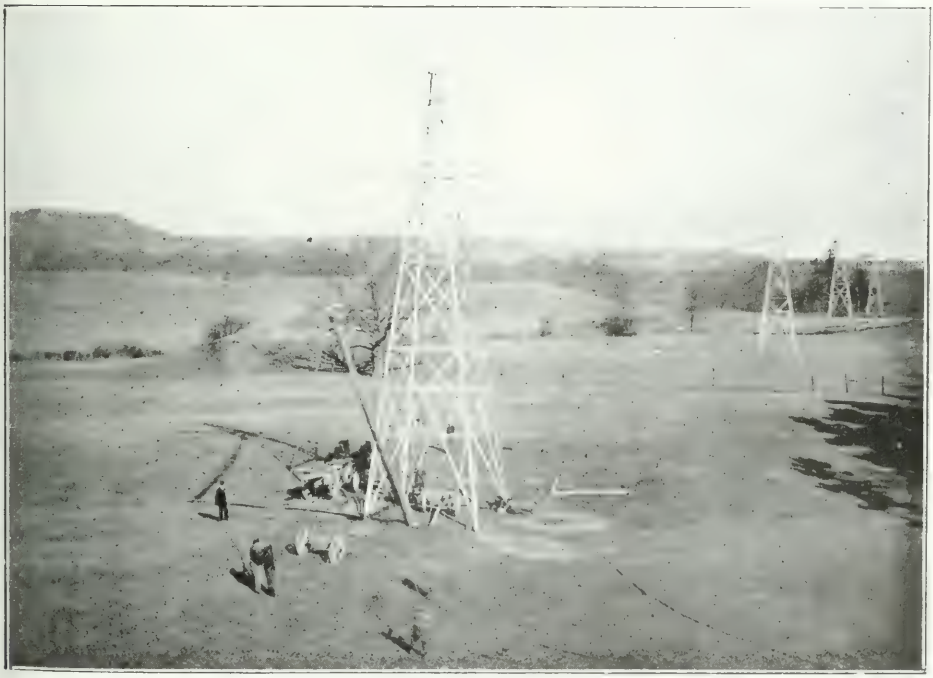


Showing Method of Erecting Towers. Bracing of Legs to Prevent Bending.

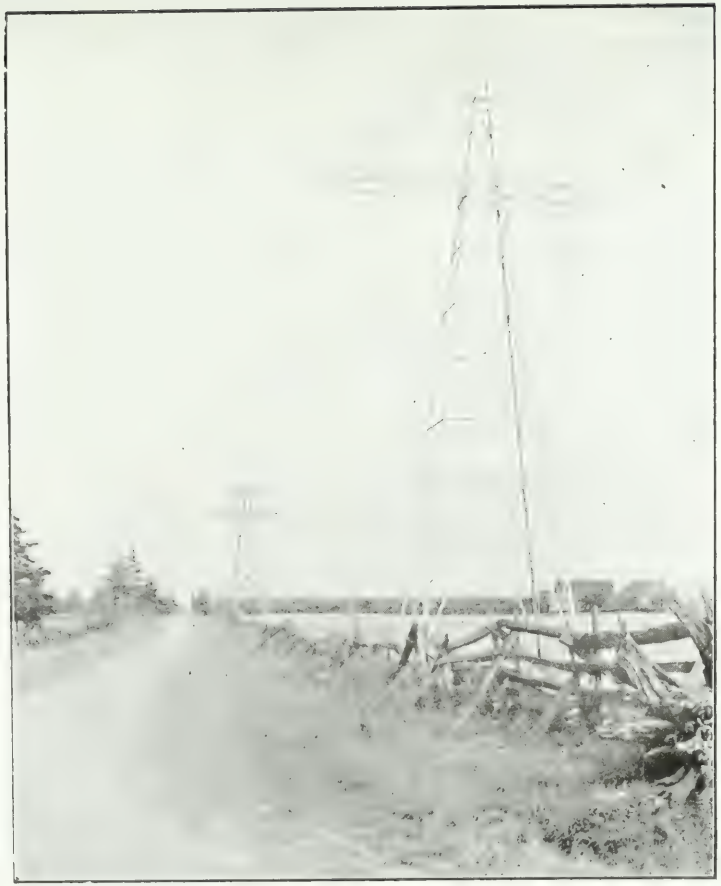
Erection of Standard Tower, Dundas Valley.



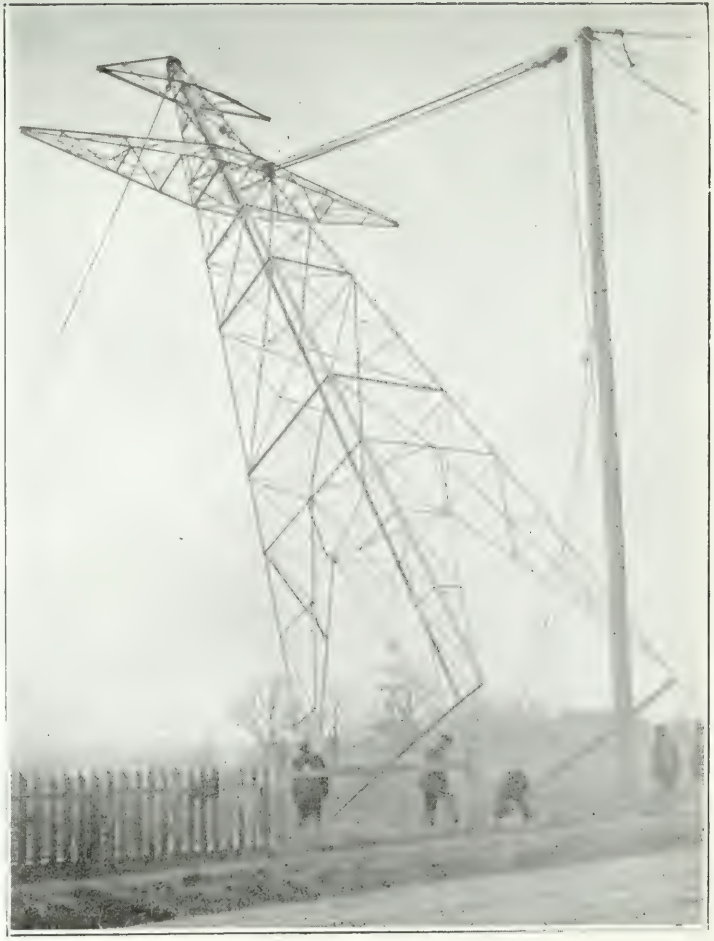
Erection of Standard Tower, Dundas Valley.



Erection of Standard Tower, Dundas Valley.



Line of Standard Towers in Niagara-Dundas Section.



Standard Tower. One Half-way Up.

SECTION B.—DUNDAS-TORONTO (CITY LIMITS).

Total distance—36.3 miles.	
Total number of towers required	391
" " " " delivered to date	261
" " " " erected to date	109
" " " " footings set	202

SECTIONS C. AND D.—DUNDAS-WOODSTOCK.

Total distance—44.5 miles.	
Total number of towers required	480
" " " " delivered to date	11

SECTION F.—DUNDAS-GUELPH.

Total distance—25.4 miles.	
Total number of towers required	270
" " " " delivered to date	...
" " " " erected to date	22
" " " footings set	50

Instructions have been given to the Contractor to push the work of setting footings, in order that as many as possible may be placed before freezing weather, so that the assembly and erection of towers can be carried on throughout the winter.

Insulators.

There have been delivered in Ontario to date 1,368 suspension type insulators. The work of erecting these started on Section 17 on Oct. 14th, and to date there have been 888 complete units erected on the towers.

TELEPHONE AND PROTECTIVE SYSTEM.

A telephone line and protective relay system to be used in operating the transmission line was included in the McGuigan contract. This line is erected on wood poles and follows the roads adjacent to the route of the transmission line, the total mileage of pole line to be constructed being about 281.

The work on the telephone line was begun in Section A, Dundas to Niagara Falls, on April 27th, 1909, and the work has since been carried on continuously, though, as in the case of the transmission line, the progress of the work was hampered by right-of-way trouble.

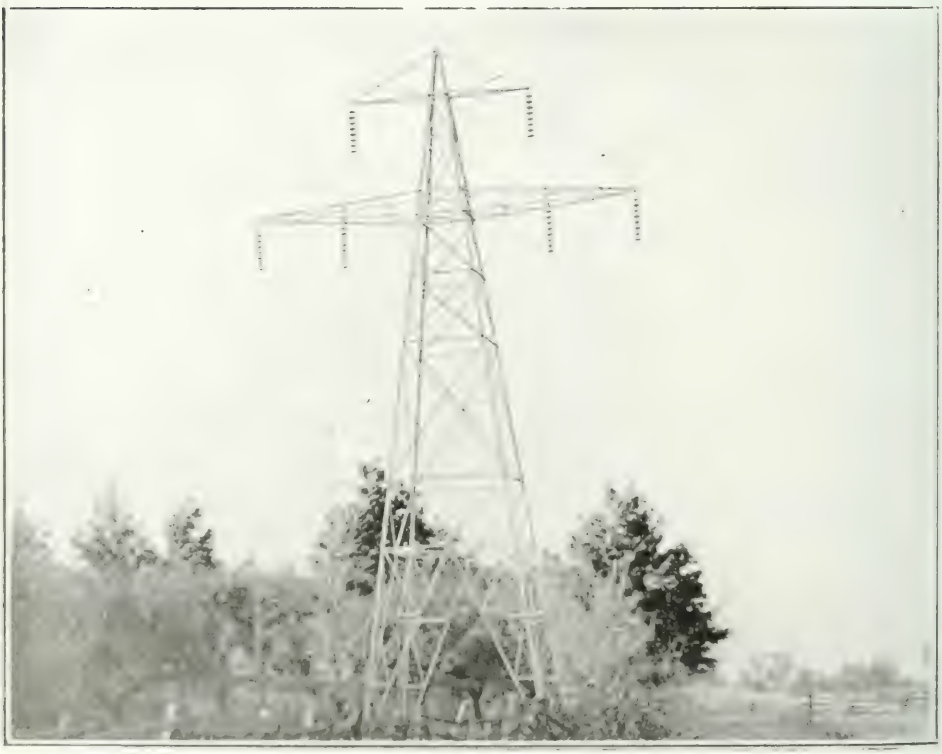
Up to October 31st, 1909, 171 miles of pole line has been erected in various parts of the system. The mileage of pole line erected in the different sections is as follows: Section A, Niagara Falls-Dundas, 44 miles; Section B, Dundas-Toronto, 29 miles; Sections C and D, Dundas-Woodstock, 22 miles; Section E, Woodstock-London, 7 miles; Section F, Dundas-Guelph, 26 miles; Section G, Guelph-Stratford, 20 miles; Section H, Stratford-London, 23 miles.

The erection of poles will continue until freezing weather sets in, the intention being to string wire during the winter.

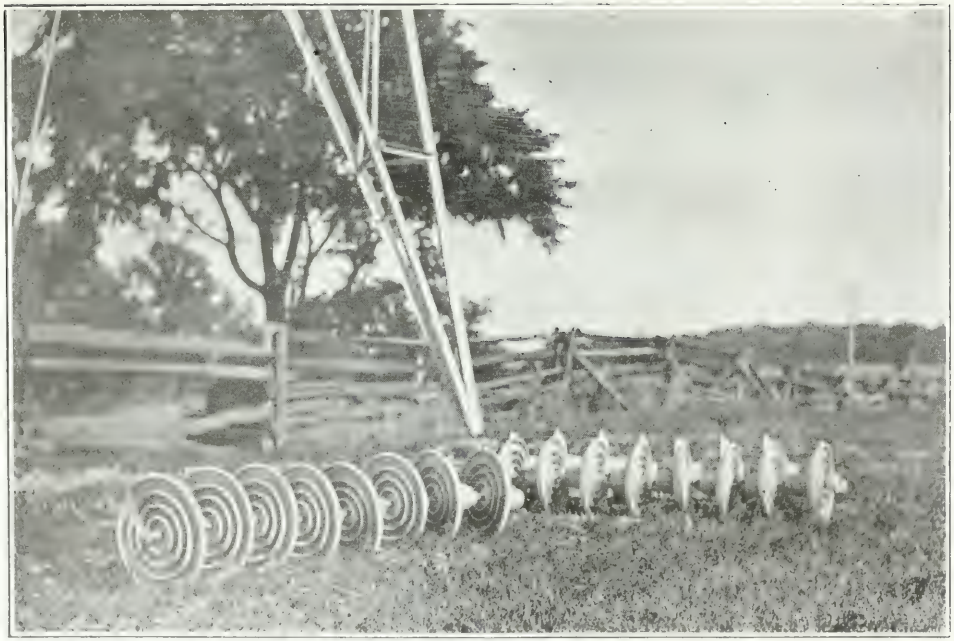
The field work on the telephone and protective system is under the supervision of the Field Engineer in charge of construction, under whom are the Commissioners' telephone line Inspectors.

No instrumental surveys were made of the route of the telephone line, the line in the various sections being staked out by the Inspector and the poles numbered consecutively.

Showing Open Base of Standard Tower.



First Tower with Insulators erected. Niagara-Dundas Section.



Insulators on Ground Ready to be Erected on Tower.

TRANSFORMER STATION CONSTRUCTION.

Location of Station Sites.

In the system at present laid out eleven high tension stations are required, one being in or near each of the following towns or cities: Niagara Falls, Dundas, Toronto, Woodstock, London, Guelph, Preston, Berlin, Stratford, St. Mary's and St. Thomas.

In choosing the sites for these stations the following points were considered:

Provision must be made for the probable requirements of communities within a radius of 12 to 15 miles of the station.

The station should be as near the centre of distribution as practicable without adding materially to the cost of right-of-way, or to the cost of high tension lines.

Provision must be made for the outgoing as well as the incoming lines, it being desirable to have as few angles as possible in either, and to have them enter the buildings at right angles to the walls through which they pass.

Cooling water for the transformers must be easily obtained and the supply must be constant.

The ground must be suitable for carrying a heavy building and must be situated so that it may be readily drained and be entirely free from all danger of floods.

Transportation facilities to and from the station had also to be considered, as well as possible homes for the station attendants within a reasonable distance from the station.

It is believed that the sites as selected are the best local conditions would allow and that they are quite suitable for the use to which they are to be put.

STATION BUILDINGS.

The designing staff was increased considerably for the purpose of the preparation of plans for the construction of the step-up transformer station at Niagara, the main interswitching station at Dundas and the interswitching station and step-down transformer stations for the different municipalities.

General designs were prepared, and just as soon as the contracts for electrical equipment were awarded the preparation of detail designs was proceeded with. The electrical apparatus as proposed by the different manufacturers differed to such an extent that it was impossible to design the buildings until it was known what apparatus would be furnished.

A staff consisting of eight designers and draughtsmen proposed plans and specifications for the different buildings. A copy of the Niagara Station specifications is printed below as a sample.

The Commission secured the services of Mr. John M. Lyle, of Toronto, as Consulting Architect, who attended to the architectural features of the buildings and gave his approval of the specifications.

Advertisements were placed in all the daily papers and engineering journals for tenders for these buildings. Copies of these advertisements are printed herewith.

Tenders were called for Niagara and Dundas stations on July 6th, and for the remaining stations, Toronto, London, Guelph, Berlin, St. Mary's, Stratford, Preston, Woodstock and St. Thomas, on July 28th.

The form of tender for Niagara building is produced herewith as a sample.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO. TENDERS FOR NIAGARA FALLS AND DUNDAS TRANSFORMER STATION BUILDINGS.

Tenders will be received up to 5 p.m., Tuesday, July 6th, 1909, for the construction of—

1. Transformer station building at Niagara Falls, Ontario.

2. Transformer and interswitching station building at Dundas, Ontario.

All according to plans and specifications to be obtained at the offices of the Commission, Continental Life Building, Toronto, Ontario. Complete plans and specifications may be obtained upon a deposit of $5.00 for each station, which deposit will be promptly refunded upon receipt of tender, or certified cheques to the amounts called for in the "Instructions to Bidders" must accompany each tender.

The lowest or any tender not necessarily accepted.

Tenders must be sealed and addressed to Hon. Adam Beck, Chairman, Hydro-Electric Power Commission, Continental Life Building, Toronto, Ontario.

Papers inserting this advertisement without authority will not be paid for same.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO. TENDERS FOR TRANSFORMER AND INTERSWITCHING STATION BUILDINGS.

Tenders will be received up to 5 p.m., Wednesday, July 28th, 1909, for the construction of Transformer and Interswitching Station Buildings at Toronto, London, Guelph, Preston, Berlin, Stratford, St. Mary's, Woodstock, Paris and St. Thomas, all according to plans and specifications to be obtained at the offices of the Commission, Continental Life Building, Toronto, Ontario.

Plans and specifications may be obtained upon a deposit of $5 per individual set, or $15 for the complete set, which deposit will be promptly refunded upon receipt of tender, or the return of plans and specifications.

Certified cheques to the amounts called for in the "Instructions to Bidders" must accompany each tender.

The lowest or any tender not necessarily accepted.

Tenders must be sealed and addressed to Hon. Adam Beck, Chairman, Hydro-Electric Power Commission, Continental Life Building, Toronto, Ontario.

Papers inserting this advertisement without authority will not be paid for same.

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION OF TRANSFORMER STATION BUILDING, NIAGARA FALLS.

1. Tenders will be received up to 5.00 p.m., Tuesday, July 6th, 1909, by the Hydro-Electric Power Commission of Ontario for the supply of materials, and for the construction of all works and performance of all labor involved in the construction of the transformer station building near Niagara Falls, all according to the drawings and specifications attached hereto.

2. Each tender shall be enclosed in a sealed envelope marked "Tender for the Construction of Transformer Station Building near Niagara Falls," and addressed to the Hon. Adam Beck, Chairman of the Hydro-Electric Power Commission of Ontario, Toronto, Canada.

3. The signature of parties tendering must be in their respective handwriting.

4. Tenderers must make themselves personally acquainted with the site of works, with the nature of the materials to be handled, with the conditions existing in the locality, and with all items which can enter into the cost of the work to the Contractor.

5. Persons tendering must satisfy the Commission of their ability to furnish the materials and perform the work for which they tender.

6. Tenders shall be submitted on the accompanying "Form of Tender," and with Bill of Materials properly filled out. Any tenders offered on other forms, or with erasures or alterations, may be rejected as informal.

7. The tenderer may attach to the "Form of Tender" additional alternative tenders for the works specified, based on the alternative type of construction as covered by the specifications. All such alternative bids shall be arranged in a manner similar to the attached "Form of Tender," in order that the Engineer may make a proper comparison of tenders.

8. Each tender must be accompanied by these Instructions to Bidders, "General Specifications for Material, etc.," "Specifications for Step-up Transformer Station Building, Niagara Falls," and "General Conditions of Contract," with the plans and drawings accompanying the specifications, all of which shall form a part of the contract to be entered into by the successful tenderer.

9. Each tender shall beaccompanied by a certified cheque for Two Thausand Five Hundred Dollars ($2,500), which certified cheque shall be forfeited to the Commission as liquidated damages in event of the successful tenderer failing to execute the necessary contract herein referred to within two weeks after notification to him from the Commission to do so. Cheques shall be returned to the respective bidders by the Commission, upon the awarding and execution of the contract as aforesaid, or at any rate within sixty days from the date of the opening of bids.

10. The successful tenderer will be required to execute a satisfactory bond in an amount equal to twenty-five per cent. (25%) of the contract price, for the proper performance of the work embraced by the contract.

11. The Commission reserves the right to reject any or all tenders, or to accept any tender which shall appear advantageous to them. The lowest or any tender will not necessarily be accepted.

Dated at Toronto, June 15th, 1909.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO. FORM OF TENDER FOR CONSTRUCTION OF TRANSFORMER STATION BUILDING, NIAGARA FALLS.

....., the undersigned, hereby offer the Hydro-Electric Power Commission of Ontario to furnish all the necessary materials, labor, tools, machinery and other plant, to execute and complete in a satisfactory and workmanlike manner all the works required in connection with the construction of the Transformer Station Building near Niagara Falls, Ontario, complete, with the exception of all work and materials under Section No. 25 of Niagara Station Specifications, "Bus, Switch and Wiring Compartments," according to the plans and

specifications submitted to ..... for the sum of .....
.....dollars ($), and agree to the following unit price in case of additions to, or deductions from, the amounts as indicated on the drawings, or called for in the specifications:

Excavation, including necessary back filling:
For foundations and under building .....per cubic yard $
For sewer and pipe trenches outside of building..... " " " $
Concrete, including forms and reinforcement:
"Mass" concrete 1-3-5 in foundations, columns and walls . . .. " " " $
6-inch reinforced floors .....per square foot $
5-inch reinforced floors ..... " " " $
3-inch reinforced floors or roof, including grading.. " " " $
Lintels in place in superstructure .....per cubic foot $
2-inch partitions, including studding ..... " square " $
Hood curtains, including moulding ..... " " " $
Ground floors, including tamping and sub-base .... " " " $
Cement and plaster ceiling (over control gallery).... " " " $
Brickwork—in place:
No. 2 pressed brick .....per M. brick $
Stock brick ..... " " " $
Cut stone work—in place:
Bearing stones for steel work .....per cubic foot $
Key stones ..... each $
Window sills—2-course .....per lineal foot $
Window sills—3-course ..... " " " $
Terra cotta—in place, including anchors:
Cornice—measured on face ..... " " " $
Coping—measured on face ..... " " " $
Structural steel in place, painted .....per pound $
Steel reinforcement in 1-3-5 concrete ..... " " $
Anchor bolts, in place ..... " " $
Checkered steel stairway treads and sheet iron risers, in place, with fastenings .....per pound $
Rails, with plates, bolts and fastenings, in place..... " " $
Glazed sewer pipe, in place, including fittings:
4-inch . . ..per lineal foot $
6-inch . . .. " " " $
8-inch . . .. " " " $
4-inch agricultural drain pipe, in place ..... " " " $
Cast iron conductor and drain pipe, in place .....per pound $
Cast iron conductor and drain fittings, in place..... " " $
Railings, two, 1½-inch pipes, in place, with posts painted complete . . ..per lineal foot $
Iron doors with frames, erected, painted, including hinges and hasps .....per pound $
6-ply gravel roofing, in place .....per square yard $
Galvanized iron flashing, in place .....per square foot $
1 enamelled porcelain water closet installed complete as per specifications $
1 washstand as specified, installed ..... $

Painting:
Walls, woodwork, sheet metal, iron pipes, etc. .....per square yard $
Concrete floor filler, in place ..... " " " $
Floors ..... " " " $
Waterproofing walls ..... " " " $
Duct (electrical), in place .....per duct foot $
Windows—in place, painted and glazed:
Metal, with rough wire glass .....per square foot $
Metal, with double diamond glass ..... " " " $
Extra, per ventilator ..... each $
..... $
..... $
..... $
..... $
..... $
..... $
..... herewith submit the following Bill of Materials, as that upon which the above proposal is based.

Excavation:
For foundations and under building ..... cubic yards.
For sewer and pipe trenches outside building ..... " "
Concrete:
1-3-5-inch foundations, columns, steps and walls.... " "
6-inch reinforced floors ..... square feet.
5-inch reinforced floors ..... " "
3-inch reinforced floors and roof ..... " "
Lintels ..... cubic feet.
2-inch partitions (in building) ..... square feet.
Hood curtains, including mouldings ..... " "
Ground floors ..... " "
Cement and plaster ceiling ..... " "
Parapet coping ..... cubic feet.
Brickwork:
No. 2 pressed brick ..... M. brick.
Stock brick ..... "
Cut stone work:
Bearing stones .....
Key stones .....
Window sills—2-course ..... lineal feet.
Window sills—3-course ..... " "
Terra cotta:
Cornice—measured on face ..... " "
Coping—measured on face ..... " "
Structural steel ..... pounds.
Checkered plate and risers for stairs ..... "
Rails and fastenings ..... "
Iron doors and frames ..... "
Pipe railings ..... lineal feet.
Steel reinforcement in 1-3-5 concrete ..... pounds.
Miscellaneous ..... "

Glazed sewer pipe:
4-inch ..... lineal feet.
6-inch ..... " "
8-inch ..... " "

4-inch agricultural drain pipe ..... " "
Cast iron pipe ..... pounds.
Cast iron pipe fittings ..... "
Gravel roofing ..... square yards.
Galvanized iron flashing ..... square feet.

Painting:
Walls, woodwork, sheet metal, iron piping, etc., single coats ..... square yards.
Concrete floor filler ..... " "
Floors ..... " "
Waterproofing walls ..... " "
Ducts (electrical) ..... duct feet.

Windows:
As per specifications.

Wooden doors:
As per specifications.

.....
.....
.....
.....
.....
.....
.....
.....
.....further offer to deduct from the above proposal the amount of
.....
Dollars ($) if the alternative wall construction as shown on Drawing 3 — S—1016 is decided upon, in which case the following amounts of materials shall be substituted for like materials in the above Bill of Materials:

Brickwork:
No. 2 pressed brick ..... M. brick
Stock brick ..... "

Terra cotta:
Cornice ..... none.
Coping ..... none.
Concrete parapet coping ..... cubic feet.
.....further offer to furnish material for, construct and erect such slabs, walls, etc., as are required for switch, wiring and bus compartments at the following prices, all according to the specifications, providing the contract for the building is let to .....
Concrete, including reinforcement, surfacing, painting:
1½-inch slabs .....per square foot $
2-inch slabs ..... " " " $
3-inch slabs ..... " " " $

Blocks, 1-2-3 mixture .....per cubic foot $
Walls, 1-2-3 mixture ..... " " " $
Walls, 1-3-5 mixture ..... " " " $
Steel supports, fittings, bolts, in place, painted .....per pound $

.....further offer to do any grading around the building for the cost of the labor plus per cent. (%).

..... hereby offer and agree should the Contract be let to..... to complete the entire work and hand it over to the Commission ready for use within..... months after the date of notification from the Engineer to begin work.

.....further hold ..... ready to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work at the rates and on the terms herein stated, and ..... further agree to furnish security for the due performance of the contract in a bond for ..... Dollars ($), with satisfactory sureties, as specified.

.....herewith enclose an accepted bank cheque, payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario, for the sum of Two Thousand Five Hundred Dollars ($2,500.00), as required in the "Instructions to Bidders," dated June 15th, 1909.

.....hereby certify that ..... have carefully investigated all conditions and the items of cost which may or can possibly enter into the cost of the work to .....

Signed.....

Post Office Address .....

.....

.....

.....

Dated .....

In answer to the advertisements, the following tenders were received for the construction complete of the transformer and interswitching station buildings:

HYDRO-ELECTRIC POWER COMMISSION.

Tenders for Transformer and Interswitching Station Buildings.

Tenderer.	Niagara Falls.	Dundas.	Toronto.	London.	Guelph.	Preston.	Berlin.	Stratford.	St. Mary's.	Paris.	Woodstock.	St. Thomas.
	$	$ c.	$ c.	$	$	$	$	$	$	$	$	$
Edge & Gutteridge, Seaforth					18,700		18,700	18,700	18,700			
S. F. Witham, Toronto	47,732	40,598 00	42,067 88		26,795	26,795	27,995	27,995	27,995	27,995	26,795	27,995
R. Garrick & Sons, Sarnia		47,143 69				20,700		21,000	21,000			
M. A. Pigott, Hamilton	50,687	41,767 00	41,565 00	27,800	22,400	22,400	22,400	22,400	22,400	22,800	22,400	22,400
John Hayman, London	47,732	35,012 86		27,000		19,850				17,550	19,850	19,850
Hyatt Bros., London				23,500								
Witchall & Son, Toronto			36,500 00									
Newman Bros., St. Catharines	55,000											
Durolithic Co., Buffalo	60,000											
W. S. Homan, Niagara Falls, Ont.	53,079											
James C. Claxton, Toronto			37,000 00									

After due consideration of the merits of the different tenders the following contracts were finally awarded:

Niagara Falls Station	John Hayman & Sons, London Ont.
Dundas Station	John Hayman & Sons, London, Ont.
Toronto Station	Witchall & Son, Toronto.
London Station	Hyatt Bros., London.
Guelph Station	Edge and Gutteridge, Seaforth.
Berlin	" " "
St. Mary's	" " "
Stratford	" " "
Preston	John Hayman & Sons, London.
Woodstock	" " "
St. Thomas	" " "

Construction commenced on most of the buildings shortly after the contracts were awarded. Reproductions of photographs taken recently show the progress of the work on different buildings.

The staff, whose duties consisted in attending to station construction, consisted of an engineer in charge of the general work, one who made an inspection of each building once a week, one inspector in charge of each station, and two designers and four draughtsmen constantly employed in the office preparing details as the work progressed.

It is highly probable that the buildings at Niagara Falls, Dundas, Toronto, Guelph, Berlin and Preston will be under cover before the severe weather sets in, and that the others will be so far advanced by the coming winter that it will be possible to continue work on same all winter.

ELECTRICAL EQUIPMENT.

Although tenders had been received during the year 1908 for the supply of electrical equipment, the contracts for same were not awarded until the spring of the present year.

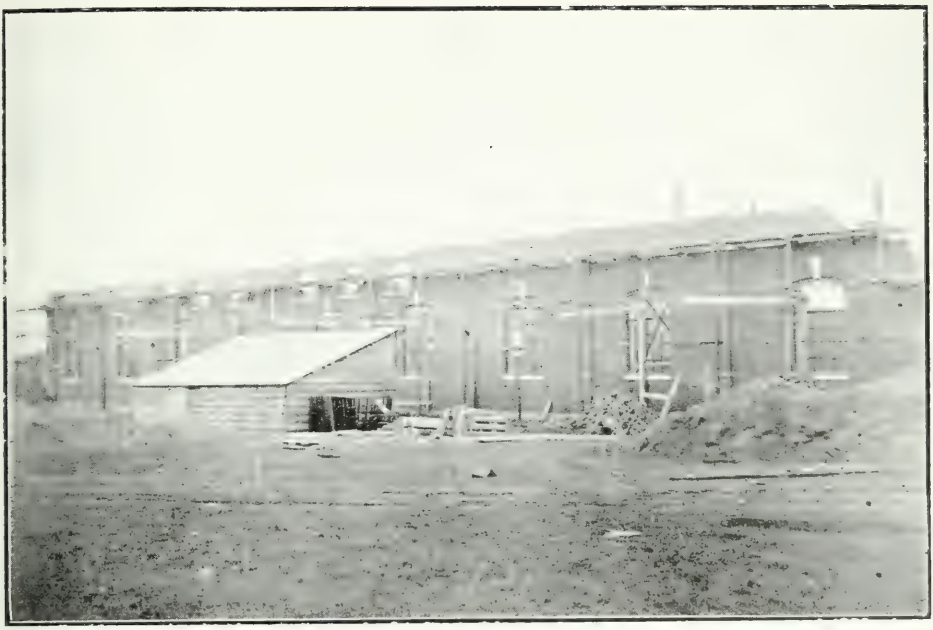
Owing to the pioneer nature of the work (transmission of power at 110,000 volts) the Commission deemed it advisable, before awarding contracts, to consult eminent engineers conversant with power transmission. The services of Mr. Ralph D. Mershon, of New York City; Mr. Robt. A. Ross, of Messrs. Ross and Holgate, Montreal; and Mr. V. Y. Converse, of Niagara Falls, were obtained.

Visits were made to the works of the General Electric Company at Schenectady, N.Y., and of the Westinghouse Company at Pittsburg, for the purpose of witnessing tests on apparatus similar to that which the different companies proposed furnishing.

After the merits of the different tenders were carefully considered, the Commission entered into contracts with different companies as follows:

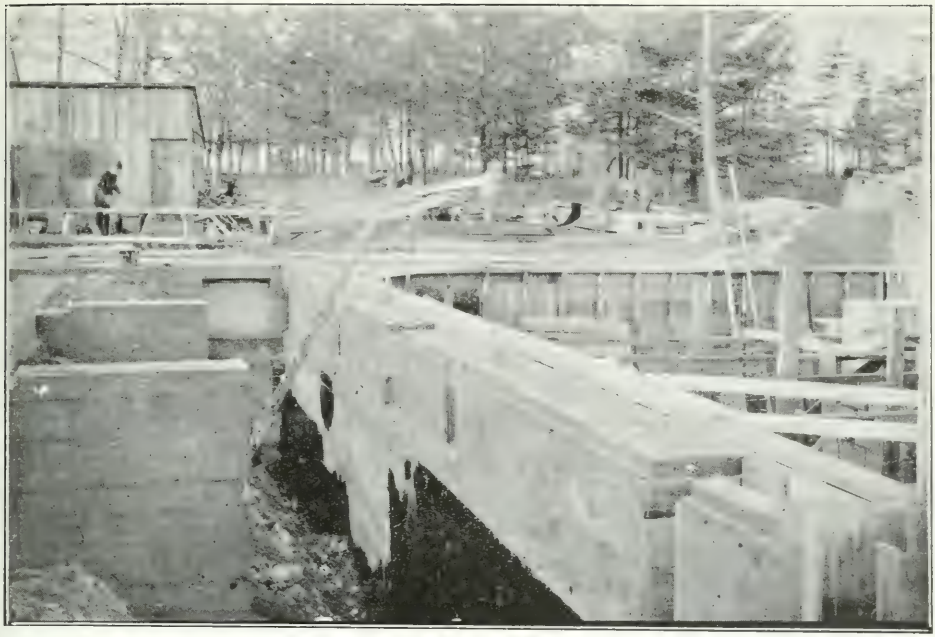
(*a*) With the Canadian General Electric Company, for the supply and installation of the necessary equipment for the stations at Toronto, London, Guelph, Preston, Berlin, Stratford, St. Mary's, Woodstock and St. Thomas, with the exception of the 110,000 volt line switches.

(*b*) With the Canadian Westinghouse, for the supply and installation of the 110,000 volt line switches in the stations just mentioned, of the complete equipment for Niagara Falls and Dundas stations, and of a protective relay system whereby defective portions of the transmission lines will be automatically cut out without disconnecting the supply of power at any distributing point of the system.



Dundas Station. October 16th, 1909.

Niagara Station. November 6th, 1909.



London Station, October 27th, 1909. Piping Subway.

Guelph Station. November 9th, 1909.

The work of construction of the electrical apparatus is advancing in the factories of the different contractors at such a rate as to warrant its completion by the different dates mentioned in the contracts. Work of installation will commence as soon as the different buildings are under cover.

A resident inspector has been appointed at each manufacturing point, whose duty it is to keep constantly in touch with the work in the shops. In addition to this, when any special tests have been performed, an engineer has been present from the office.

The contracts for the electrical equipment are printed herewith. The wiring diagram for each station is shown on the following pages, and also a sample plan and elevation of a station showing layout of apparatus.

THIS AGREEMENT, dated the 26th day of May, 1909,

BETWEEN CANADIAN GENERAL ELECTRIC COMPANY, LIMITED (hereinafter called the Contractor), Party of the First Part, and HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO (hereinafter called the Commission), Party of the Second Part,

WITNESSETH that the parties covenant, promise and agree each with the other as follows:

The following documents:

(*a*) Commission's "Specifications for Electrical Equipment, Toronto, London, Guelph, Preston, Berlin, Stratford, St. Mary's, Woodstock, and St. Thomas stations (Line Oil Switches and Relays omitted)" (99 pages), marked "A."

(*b*) Drawings accompanying Commission's Specifications (12 drawings) marked "B."

(*c*) General conditions of Contract (11 pages), marked "C."

(*d*) Contractor's "Specifications for Switchboard" (36 pages), and "Specifications for Transformers" (pages), marked "D."

(*e*) Prints of Contractor's Drawings when initialed as approved by Engineer, marked "E."

(*f*) Contractor's Bond, marked "F."

(*g*) Schedule of Prices, marked "G."

shall form part of this contract.

The Contractor agrees:—

1. To furnish, install and test, for stations at or near Toronto, London, Guelph, Stratford, St. Thomas, Woodstock, Berlin, St. Mary's and Preston, the electrical equipment set forth in detail in the said plans, specifications and drawings.

2. To use the best material and construct and install equipment in a thorough workmanlike manner, in strict conformity with said plans, specifications and drawings, to the satisfaction of the Commission's Chief Engineer.

3. To fully complete and deliver to the Commission the said equipment at the following dates:—

(*a*) To use every means within the Contractor's power to complete, according to this contract, on or before the 19th December, 1909, a bank of three transformers and a spare transformer, with all necessary switches for Toronto station, and all transformers, switches, and apparatus, necessary for the stations at Guelph, Berlin and Preston.

(*b*) To complete the equipment set forth in 3 (*a*), on or before the 15th March, 1910.

(*c*) To use every means within the Contractor's power to complete, according to this contract, on or before said 15th March, 1910, the stations at Toronto, London, Guelph, Preston, Berlin, Stratford, St. Thomas, St. Mary's and Woodstock.

(*d*) To complete the stations set forth in 3 (*c*) on or before the 19th May, 1910.

(*e*) If any of the said equipment set forth in 3 (*a*) should become defective prior to the 15th March, 1910, and if any of said equipment set forth in 3 (*c*) should become defective prior to the 19th May, 1910, the Contractor shall forthwith, without any delay, use every means within the Contractor's power to replace the said defective equipment.

(*f*) The Contractor shall be liable for damages for breach of contract to use every means in the Contractor's power to complete the said equipment in 3 (*a*) on or before the 19th December, 1909, and for breach of contract to replace the said equipment as provided in 3 (*e*).

(*g*) Except as provided in 3 (*e*) and (*f*), the Contractor shall not be liable for breach of contract in respect of the said equipment set forth in 3 (*a*), committed prior to the 15th March, 1910, nor for breach of contract in respect of the said equipment set forth in 3 (*c*), committed prior to the 19th May, 1910.

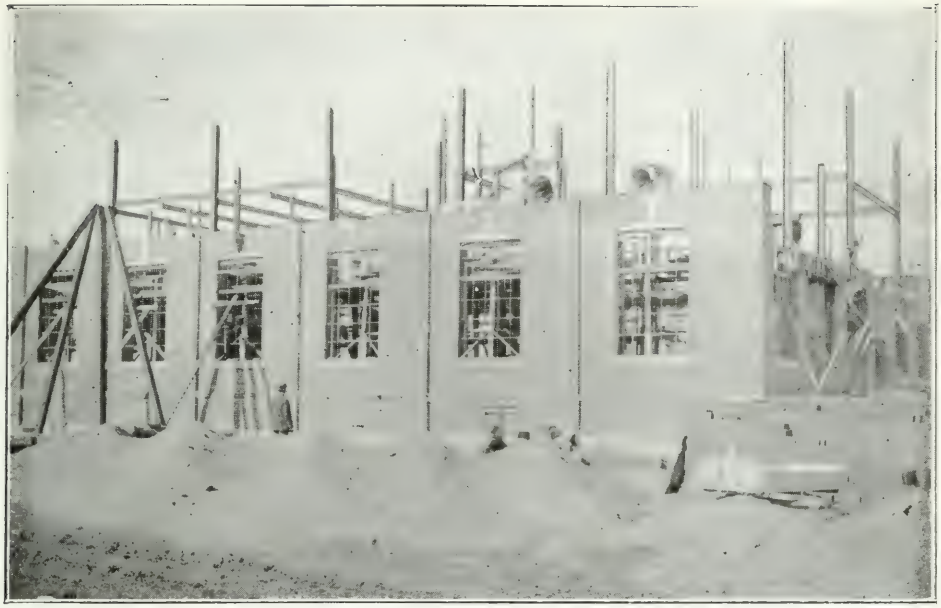
(*h*) Prior to the said 15th March, and 19th May, 1910, the Contractor shall be liable for breach of contract in respect of the said equipment and otherwise, as set forth in 3 (*e*), and, after said dates, the Contractor shall be liable as provided in other paragraphs of this contract.

4. To deliver to the Commission a Bond, satisfactory to the Commission, to secure the sum of Sixty Thousand Dollars ($60,000), for the proper performance of the contract. It shall be provided in said Bond that, without notice to the Surety, the said documents and this contract, or any part or parts thereof, may, from time to time, be varied, and that the said Surety shall not be released or the liability under the Bond affected by any such variations.

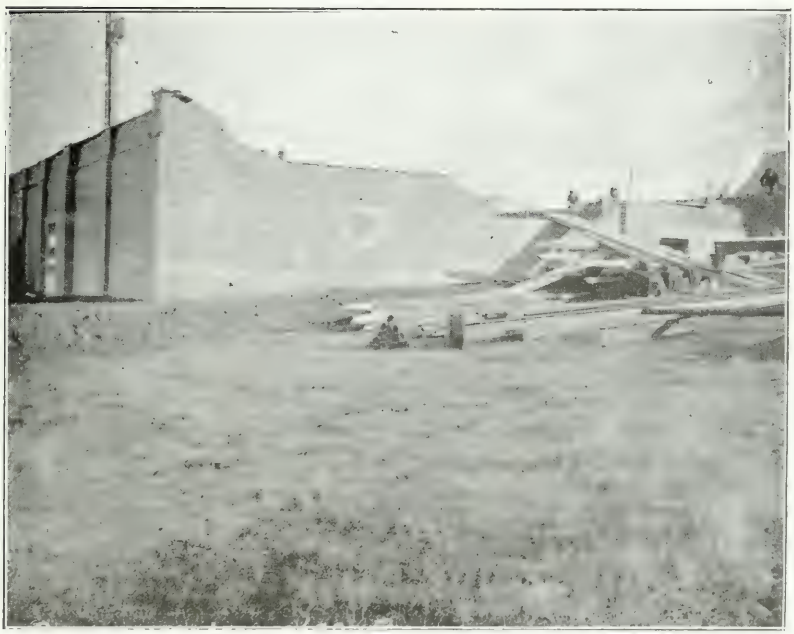
5. If any delay is caused by breach of this contract, the damages, when ascertained, shall not exceed $10,000 for the first month, $20,000 for the second month, and $30,000 for the third month. At the expiration of the third month, the Contractor shall be liable for damages for breach of contract as provided in other paragraphs of this contract. Damages for breach of contract for any part of the said months shall not exceed a proportionate part of the said sums. The said sums are respectively to be deemed maximum but unliquidated damages.

6. On or before the 1st January, 1910, upon request in writing, to enter into a further contract upon the terms hereof, except as to time of completion, which shall be a reasonable time to be fixed by the said Engineer, to supply any spare and additional equipment that may be required for the said nine stations, and if required by the Commission for stations at or near Brantford, Chatham, and Windsor, at prices set forth in said schedule of prices.

7. On or before the 1st January, 1912, upon request in writing, to enter into a further contract to supply, at the prices set forth in said schedule of prices, together with the increase (if any), in cost for copper and labor, all regular and spare electrical equipment, if required by the Commission, for stations at or near Brantford, Chatham, and Windsor.



Berlin Station. November 3rd, 1909.



St. Mary's Station. November 4th, 1909.

Preston Station. October 21st, 1909.

Stratford Station. November 10th, 1909.

8. The Bond to be delivered for either or both of said further contracts shall be 25 per cent. of the amount thereof.

9. The Commission agrees:—

(*a*) The Engineer shall, pursuant to paragraph 14 (*a*) of the General Conditions, give his order to the Contractor to proceed with the works, as soon as possible, and not later than the 1st of June, 1909.

(*b*) To pay to the Contractor, for said equipment, upon the terms and conditions set forth in the said General Conditions and Specifications the amounts set opposite the name of the said stations as follows:—

Toronto Alternative	$65,503	St. Thomas	$26,775
Toronto	77,704	Woodstock	40,210
London	49,422	Berlin	46,030
Guelph	34,046	St. Mary's	34,046
Stratford	34,046	Preston	42,467

10. It is further agreed:—

(*a*) That the Contractor will, within a time specified in writing by the said Engineer, supply the Commission with data and details of all electrical characteristics for the said equipment, and the Commission will, upon request in writing, supply the Contractor with such data and details of electrical power and equipment to be supplied to the Commission by any other Contractor or parties.

(*b*) If the Contractor does not, in the opinion of the said Engineer, carry on the works with sufficient speed to complete the work at said dates, the Commission may, at its option, be released from this agreement, and the Contractor shall, upon notice in writing, immediately discontinue the works, and if required by the said Engineer, the Contractor shall immediately remove the whole or any part of the said equipment, to be specified by the Engineer, that has been delivered to the Commission, and the Commission may, at its option, proceed with the said works. The Commission shall not be liable for any loss, costs or damage arising before or after the release of the Commission from this agreement.

(*c*) All the rights and remedies of the Commission and of the Engineer, acting on their behalf, may be exercised and continued concurrently or in the alternative.

(*d*) If within twelve months from the date of the final certificate of the Engineer, it appears that unsound or defective material has been used by the Contractor, or the said works have not been executed in a substantial, workmanlike and proper manner, the Contractor shall be liable to the Commission for all damages arising therefrom. No certificate, payment, or other act, matter or thing, done or omitted, under this contract, shall bar or prejudice the rights of the Commission in this respect.

(*e*) Time shall be of the essence of this agreement.

(*f*) For all purposes of this contract, notices shall be served upon the Engineer, or his appointee, in writing, for the Commission, and upon the Manager, or his appointee, in writing, for the Contractor.

(*g*) In case any municipal corporation, which shall contract with the Commission for a supply of power, or any person, firm, or corporation, which shall contract with any such municipal corporation, or with the Commission, for a supply of power, shall suffer damages by breach of this contract by the Contractor, and such municipal corporation, firm, person, or corporation, would, if the Contractor had made this contract directly with them, have had a right to recover such damages, or commence any proceedings, or any other remedy, the Commission shall be entitled to commence any such proceedings, or bring such action for, or on behalf of, such municipal corporation, person, firm, or corporation, and notwithstanding any acts, decision, or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm, or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm, or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid. The rights and remedies of any such municipal corporation, person, firm or corporation, shall not be hereby prejudiced.

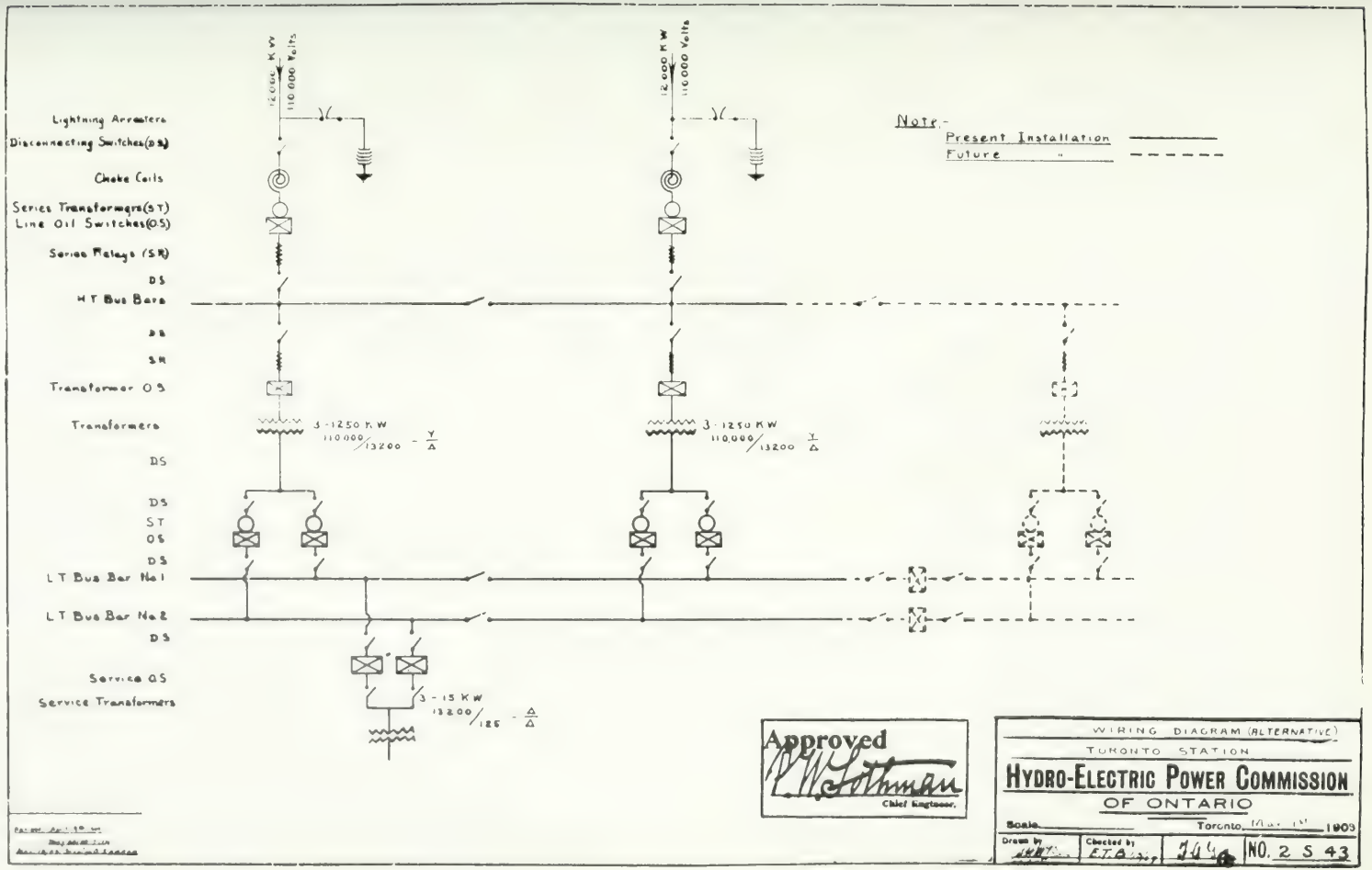
11. The Contractor shall not be liable for damages for breach of contract caused by any delay of the Commission, and neither party shall be liable for damages for breach of contract caused by strikes, lock-outs, accidents, riots, fires, explosions, acts of God, war, the delay of any other contractor, or any other cause reasonably beyond its control, and should any delay in the performance of this contract be caused to either party thereby, the Contractor shall not be bound to deliver [or and] the Commission shall not be bound to accept equipment during such time and the time for performance of this contract by both parties shall be correspondingly extended. Provided that the Contractor shall not be exonerated from such damages, nor entitled to have the time extended if when the delay of the Commission and of any other Contractor happened the Contractor had not performed so much of his contract as the Commission was then entitled to.

Provided further that the parties shall be prompt and diligent to remove the cause or causes of interruption, in so far as they are able, and when such interruption shall have ceased the parties shall be prompt and diligent to perform the contract.

Provided that in construing this paragraph the rule of law known as *ejusdem generis* shall not be applied.

12 (*a*) If any difference shall arise during the progress or after the completion of the works, as to any matter or thing arising under or out of this contract, such difference shall be referred to two arbitrators, one to be chosen by each of the parties hereto, and they shall choose a third arbitrator; but, if they cannot agree, such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible, the arbitrators shall decide such difference in a summary manner. Either party may appeal from any award of the arbitrators, as provided by the Arbitration Act, R.S.O., Chap. 62, but no such appeal shall be carried beyond the decision of the Court of Appeal of Ontario.

(*b*) The arbitrators shall not consider any matter or difference which is expressly, or by implication, required, or permitted to be decided by the Engineer, or as to the grounds upon which, or mode in which, any



Approved
D. W. Gothman
Chief Engineer.

WIRING DIAGRAM (ALTERNATIVE)

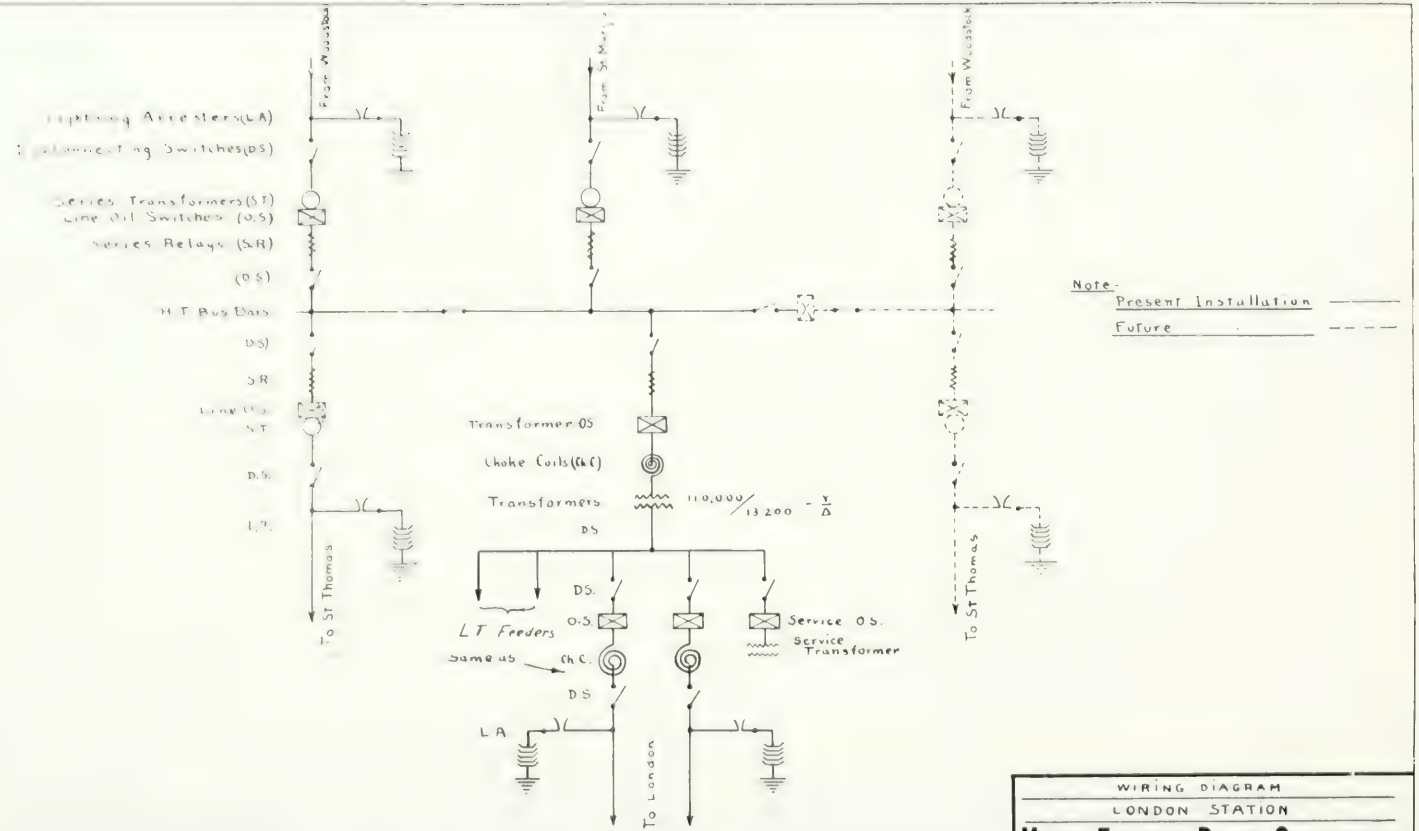
TORONTO STATION

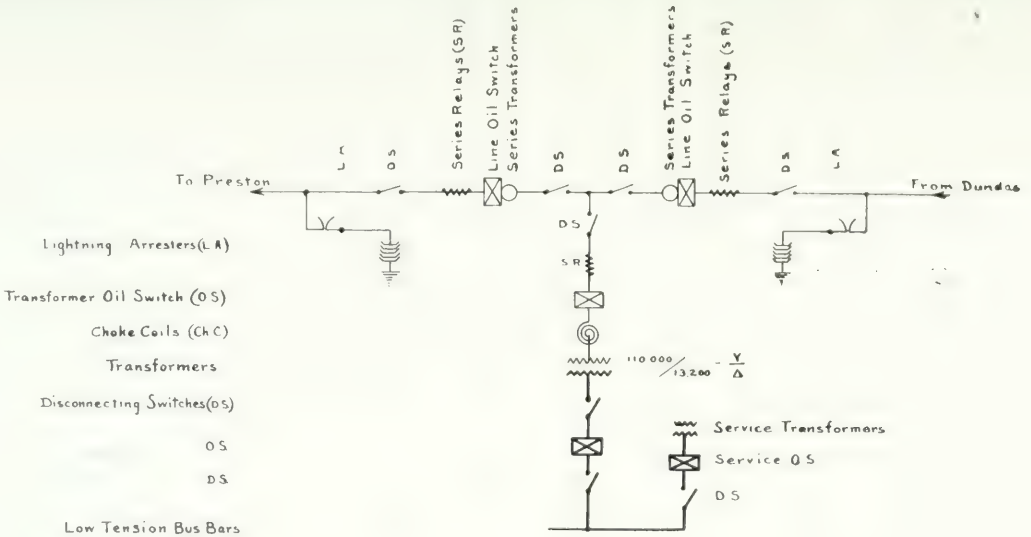
HYDRO-ELECTRIC POWER COMMISSION

OF ONTARIO

Scale. Toronto, Mar 15th 1909

Drawn by	Checked by		NO. 2 S 43
[illegible]	E.T.A.	[illegible]	


From Woodstock
From St Marys
From Woodstock
Lightning Arresters (LA)
Disconnecting Switches (DS)
Series Transformers (ST)
Line Oil Switches (O.S)
Series Relays (SR)
(D.S)
H.T Bus Bars
D.S)
S.R
Line O.S
S.T
D.S.
L.A.
To St Thomas
Transformer OS
Choke Coils (Ch C)
Transformers
110,000/13200 - Y/D
DS
D.S.
O.S
LT Feeders
Same as
Ch C.
D.S
L.A
To London
Service O.S.
Service Transformer
To St Thomas
Note:-
Present Installation
Future
P.W. SOTHMAN
Chief Engineer
WIRING DIAGRAM
LONDON STATION
HYDRO ELECTRIC POWER COMMISSION
OF ONTARIO
Scale
Toronto, Mar 1st 1909
Drawn by
Checked by
NO. 2544

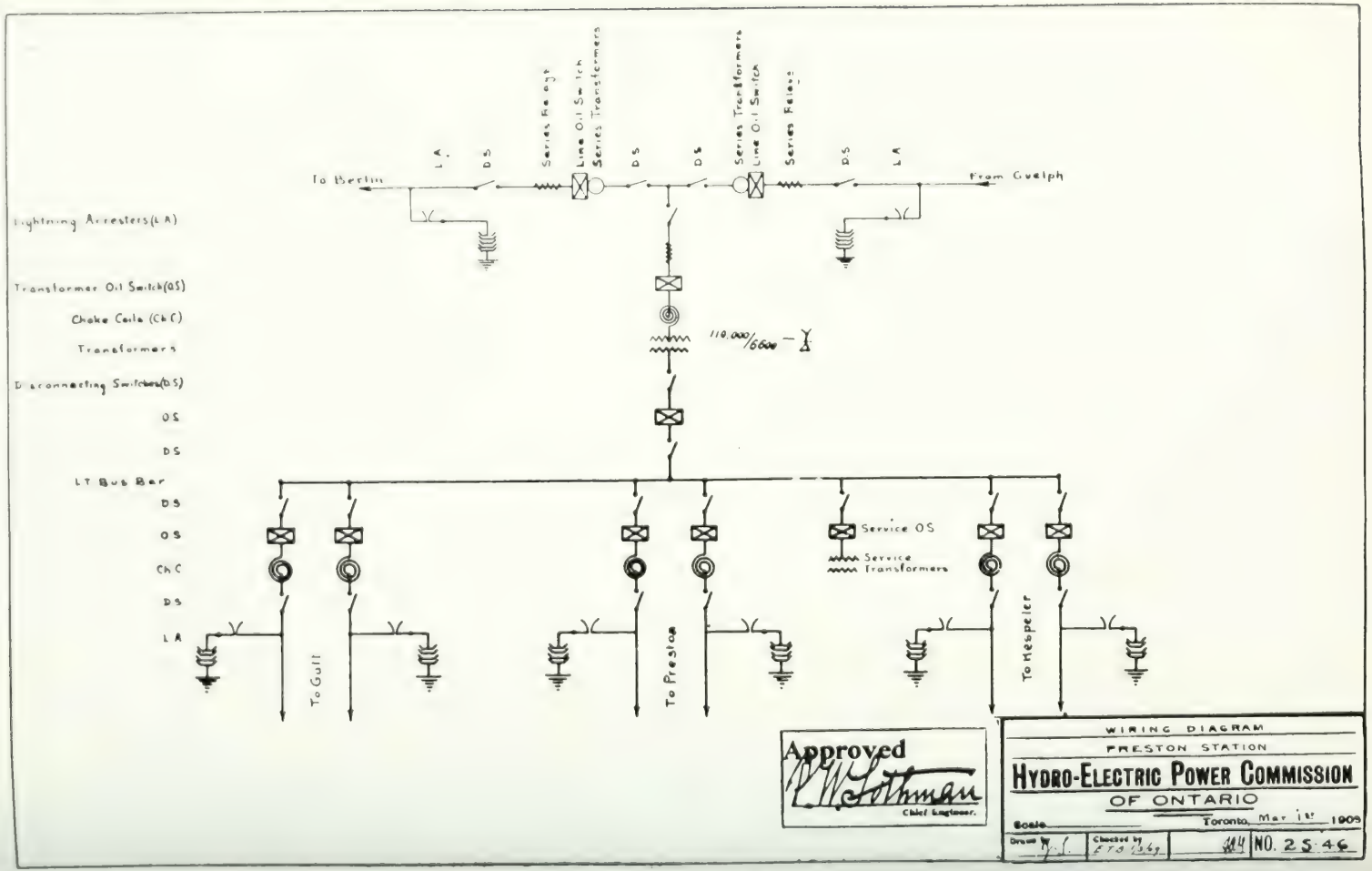


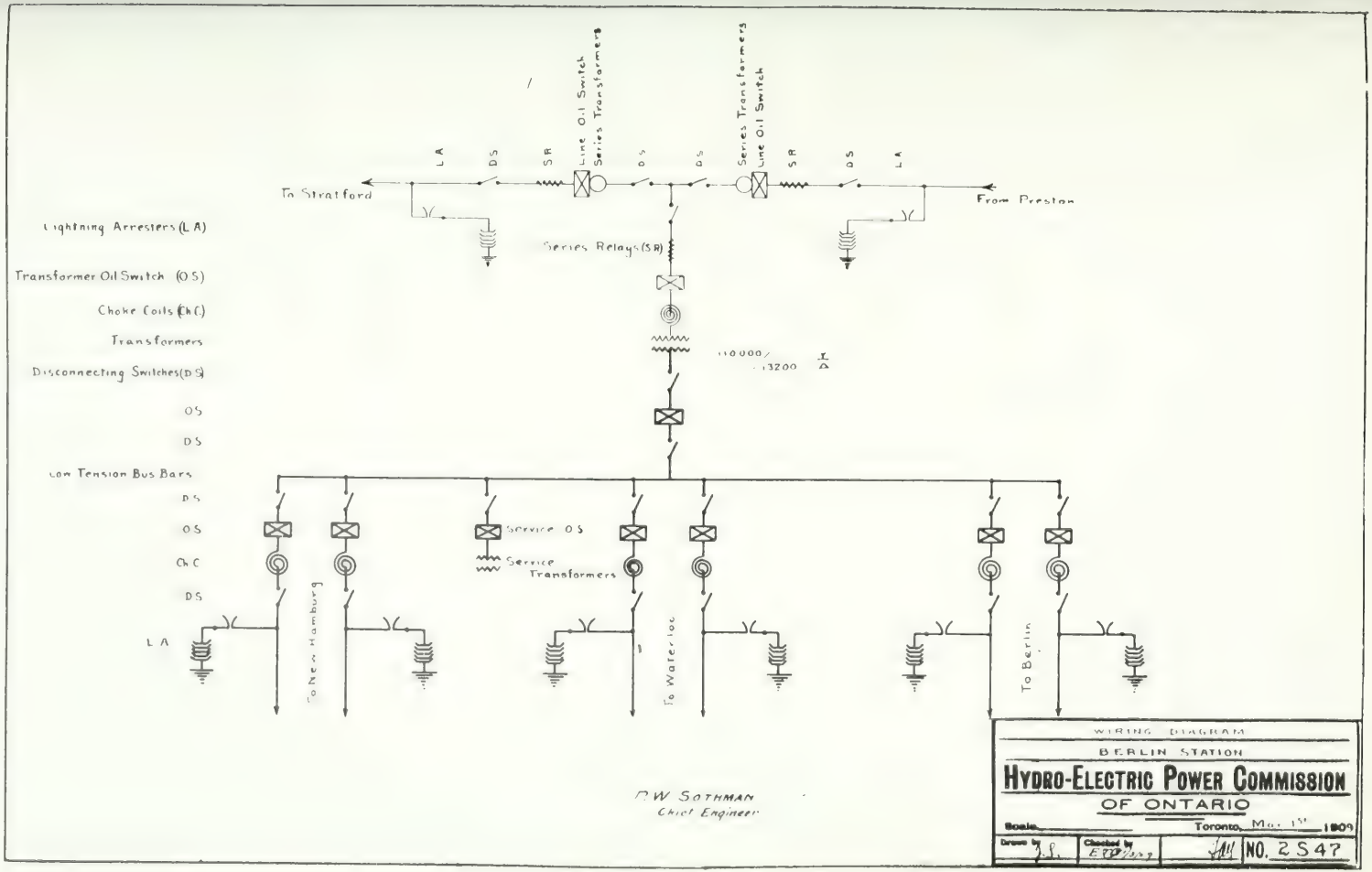
Approved
P. W. Gothman
Chief Engineer.

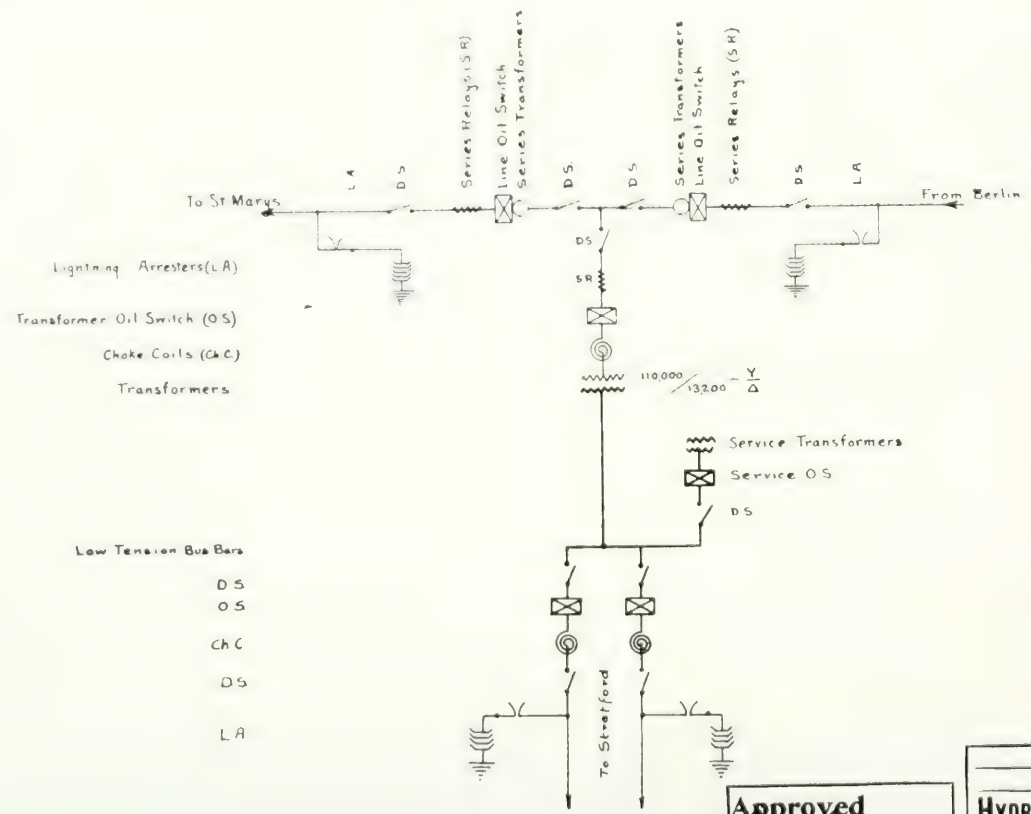
WIRING DIAGRAM
GUELPH STATION
HYDRO-ELECTRIC POWER COMMISSION
OF ONTARIO

Scale. Toronto, Mar 15th 1909

Drawn by	Checked by		NO. 2.S.45
J. S.	E.T.B. 15/3/09		

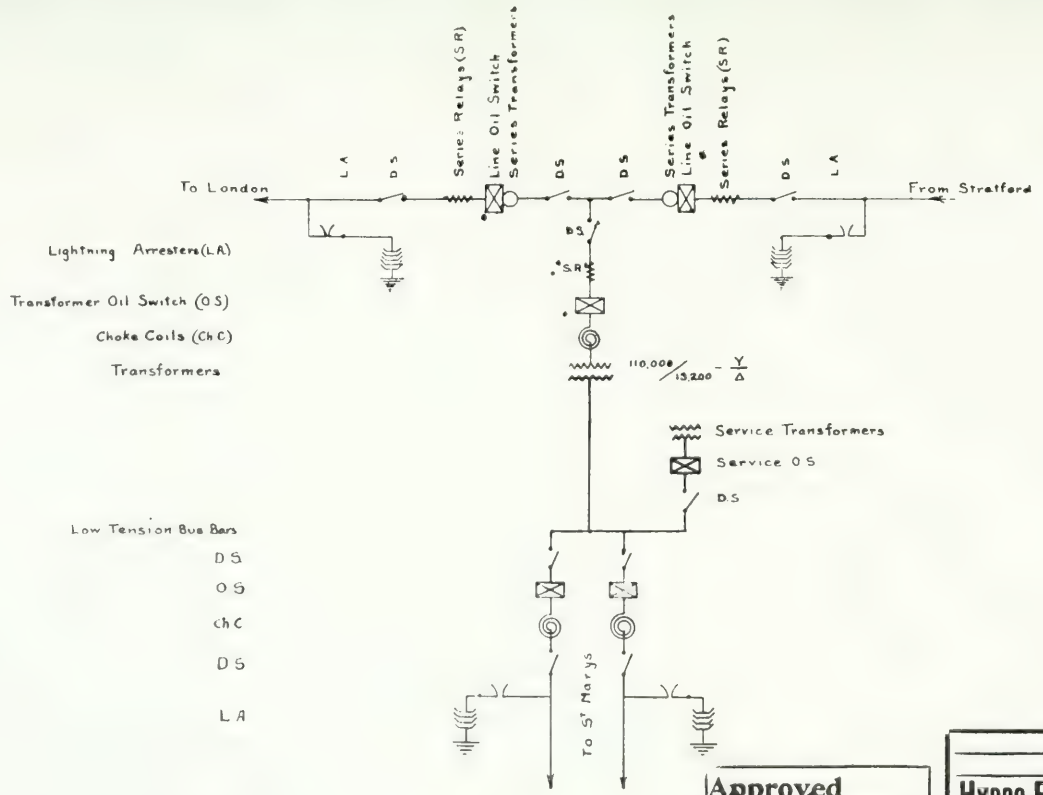

To Berlin
L.A.
D.S
Series Reactor
Line Oil Switch
Series Transformers
D.S
D.S
Series Transformers
Line Oil Switch
Series Relays
D.S
L.A
From Guelph
Lightning Arresters(L.A)
Transformer Oil Switch(OS)
Choke Coils (Ch C)
Transformers
Disconnecting Switches(DS)
OS
DS
LT Bus Bar
DS
OS
Ch C
DS
L.A
110,000/6600 - Y
Service OS
Service Transformers
To Guelph
To Preston
To Hespeler
Approved
Chief Engineer.
WIRING DIAGRAM
PRESTON STATION
HYDRO-ELECTRIC POWER COMMISSION
OF ONTARIO
Toronto, Mar 1st 1909
Scale
Drawn
Checked
NO. 2546


To Stratford
From Preston
L A
D S
S R
Line O.I Switch
Series Transformers
O S
D S
Series Transformers
Line O.I Switch
S R
D S
L A
Lightning Arresters (L A)
Transformer Oil Switch (O S)
Choke Coils (Ch C)
Transformers
Disconnecting Switches (D S)
O S
D S
Low Tension Bus Bars
D S
O S
Ch C
D S
L A
Series Relays (S R)
110000/
13200
Service O S
Service Transformers
To New Hamburg
To Waterloo
To Berlin
D W SOTHMAN
Chief Engineer
WIRING DIAGRAM
BERLIN STATION
HYDRO-ELECTRIC POWER COMMISSION
OF ONTARIO
Scale
Toronto, May 1st 1909
Drawn by
Checked by
NO. 2547



Approved
P. W. Gothman
Chief Engineer.

WIRING DIAGRAM
STRATFORD STATION
HYDRO-ELECTRIC POWER COMMISSION
OF ONTARIO
Scale
Toronto, May 12th 1909
Drawn by
Checked by
NO. 2548



Revised Aug 17th 09 13200 V Feeders (A.

Approved
L. W. Lothman
Chief Engineer.

WIRING DIAGRAM

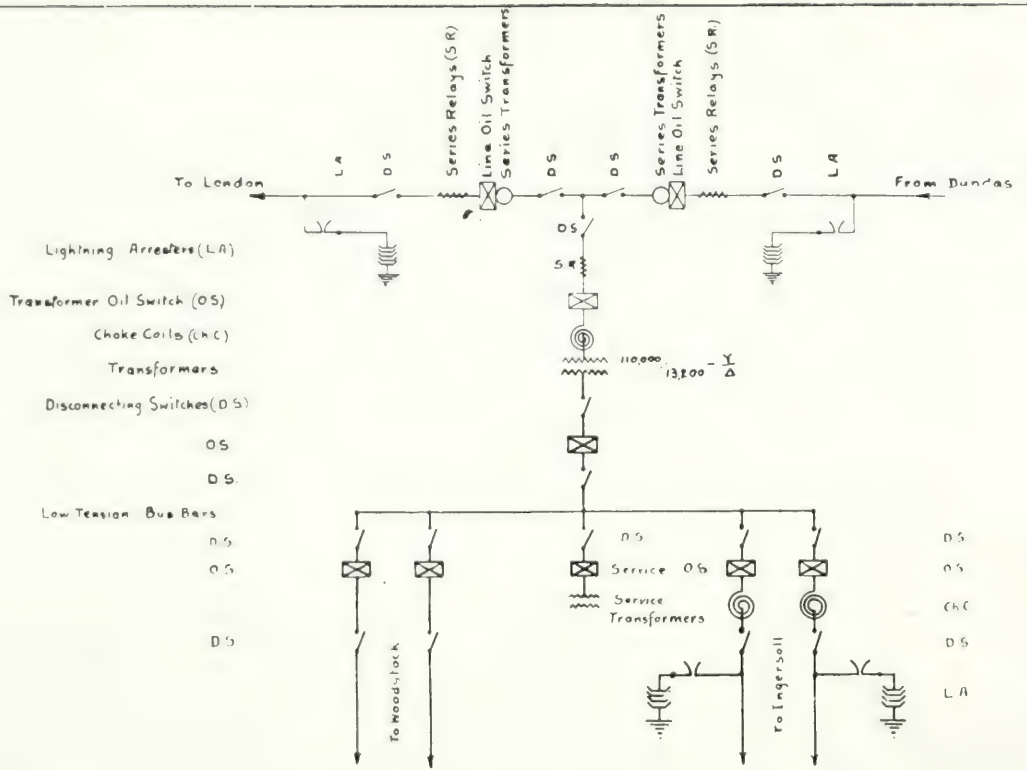
ST MARYS STATION

HYDRO-ELECTRIC POWER COMMISSION

OF ONTARIO

Scale. Toronto, Mar 1st 1909

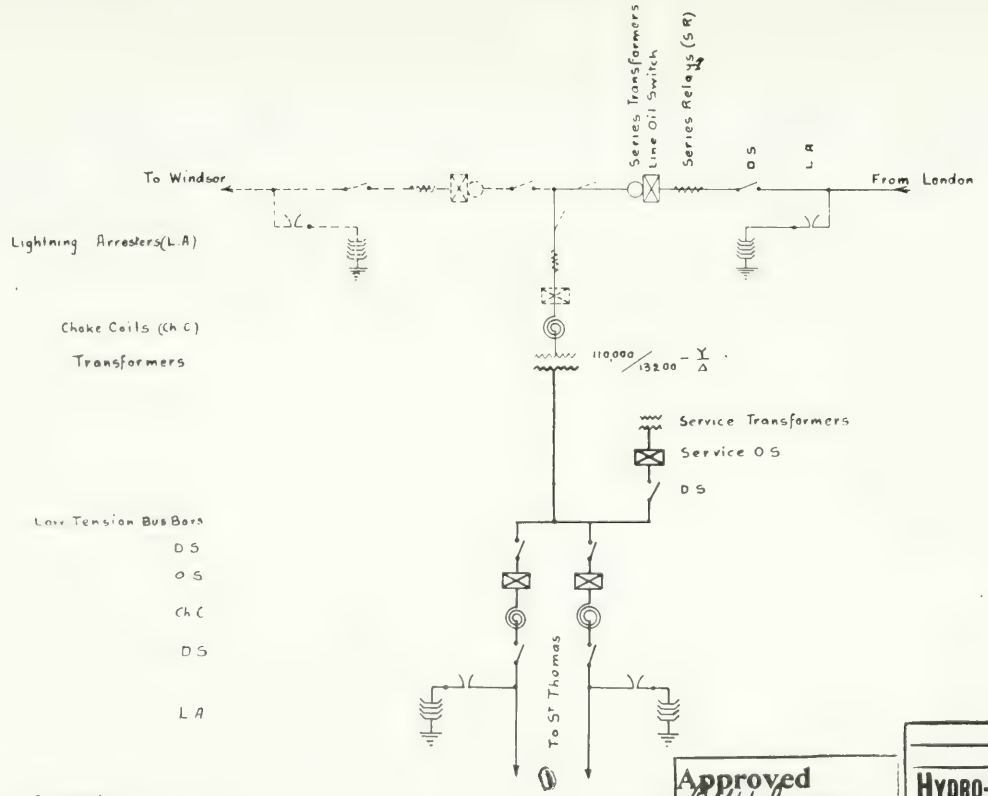
Drawn by	Checked by		NO. 2549
J S	E T B	494	



Approved
P. W. Gothman
Chief Engineer.

WIRING DIAGRAM
WOODSTOCK STATION
HYDRO-ELECTRIC POWER COMMISSION
OF ONTARIO
Scale
Toronto, Mar. 1st 1909
Drawn by J. L.
Checked by P. W. G.
NO. 25-50

Revised Aug 17th 09 - Woodstock Feeders L.A.



Note

Present Installation ———

Future Installation - - - - -

Revised Aug 17th 09. 13200 V. Feeders c.f.

Approved
F. W. Gothman
Chief Engineer.

WIRING DIAGRAM
St THOMAS STATION
HYDRO-ELECTRIC POWER COMMISSION
OF ONTARIO
Scale
Toronto, March 1st 1909
Drawn by J. L.
Checked by E.T.O./09
NO. 25-51.

opinion may have been formed or discretion exercised, by the Engineer. If any such matter or difference shall arise, and the Contractor claims that such matter or difference should be determined by arbitrators, the Contractor may apply in writing to the Commission, to waive this paragraph 12 (*b*): thereupon the Commission shall appoint a time and place to hear any representations of the Engineer or Contractor, and the Commission may, in its sole discretion, waive the provisions of this paragraph 12 (*b*), and permit the said matter or difference to be referred under paragraph 12 (*a*) to said arbitrators.

13. This agreement shall extend to, be binding upon, and enure to the benefit of the successors and assigns of the said parties.

IN WITNESS WHEREOF the Commission and the Contractor have respectively affixed their corporate seals and the hands of their proper officers.

Canadian General Electric Company, Limited.

H. P. DWIGHT, *Vice-President.*
[Seal] H. G. NICHOLLS, *Secretary.*

Hydro-Electric Power Commission of Ontario.

A. BECK.
[Seal] JOHN S. HENDRIE.
W. K. MCNAUGHT.

THIS AGREEMENT, dated the 26th day of May, 1909,

BETWEEN CANADIAN WESTINGHOUSE COMPANY, LIMITED, (hereinafter called the Contractor), Party of the First Part, and HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO (hereinafter called the Commission), Party of the Second Part,

WITNESSETH that the parties covenant, promise and agree each with the other as follows:—

The following documents:—

(*a*) Commission's "Specifications for Electrical Equipment Niagara Falls and Dundas Stations, Line Switch and Protective Relay System" (70 pages), marked "A."

(*b*) Drawings accompanying Commission Specifications (7 drawings), marked "B."

(*c*) General conditions of Contract (11 pages), marked "C."

(*d*) Contractor's Specifications, covering equipment for Niagara Falls and Dundas Stations, and for the Protective System (57 pages), marked "D."

(*e*) Prints of Contractor's Drawings when initialed as approved by Engineer, marked "E."

(*f*) Contractor's Bond, marked "F."

(*g*) Schedule of prices, marked "G."

shall form part of this contract.

The Contractor agrees:—

1. To furnish, install and test, for stations at or near Niagara Falls and Dundas, the electrical equipment set forth in detail in the said plans, specifications and drawings.

2. To furnish, install and test a protective relay system, including line switches for nine stations, as set forth in detail in said plans, specifications and drawings.

3. To use the best material and construct and install equipment in a thorough workmanlike manner, in strict conformity with said plans, specifications and drawings, to the satisfaction of the Commission's Chief Engineer.

4. To fully complete and deliver to the Commission the said equipment at the following dates:—

(*a*) To use every means within the Contractor's power to complete, according to this contract, on or before the 19th December, 1909, for the Niagara station, a bank of three transformers, and a spare transformer with all necessary switches and apparatus for the said Niagara and Dundas stations.

(*b*) To complete, according to this contract, the equipment set forth in 4 (*a*), on or before the 1st March, 1910.

(*c*) To complete, according to this contract, on or before the 19th May, 1910, for the Niagara station, a second bank of three transformers, with all necessary switches and apparatus therefor, at the said Niagara and Dundas stations.

(*d*) To complete, according to this contract, on or before the 19th July, 1910, the remainder of the said transformers and switches and apparatus.

(*e*) To complete, according to this contract, so much of the said relay system as may be required from time to time, for all transformers, switches, and apparatus of the contractor, and of any other contractors with the Commission.

(*f*) If any of the equipment set forth in 4 (*a*) should become defective prior to the 1st March, 1910, the contractor shall immediately replace the said defective equipment.

(*g*) The Contractor shall be liable for damages for breach of contract to use every means in the Contractor's power to complete the said equipment in 4 (*a*) on or before the 19th December, 1909, and for breach of contract to replace the said equipment as provided in 4 (*f*). Provided that the Contractor shall not be liable for said damages unless and until the arbitrators mentioned in paragraph 9 (*a*) shall have certified that the Contractor has not used every means reasonably within his power to complete the said equipment before the 19th December, 1909.

(*h*) Except as provided in 4 (*f*) and (*g*) the Contractor shall not be liable for breach of contract in respect of the said equipment set forth in 4 (*a*) committed prior to the 1st March, 1910.

(*i*) After said 1st March, 19th May, and 19th July, 1910, the Contractor shall be liable in respect of the said equipment to be supplied at said last mentioned dates, as provided in other paragraphs of this contract.

5. To deliver to the Commission a Bond, satisfactory to the Commission, to secure the sum of Sixty Thousand Dollars ($60,000) for the proper performance of the contract. It shall be provided in said Bond that, without notice to the

Surety, the said documents, and this contract, or any part or parts thereof, may, from time to time, be varied, and that the said Surety shall not be released, or the liability under the Bond affected by any such variations.

6. On or before the 1st January, 1910, upon request in writing to enter into a further contract upon the terms hereof, except as to time of completion, which shall be a reasonable time to be fixed by the said Engineer, to supply any spare and additional equipment that may be required for the said two stations, at the prices set forth in the Schedule of Prices.

7. The Bond to be delivered for said further contract shall be 25 per cent. of the amount thereof.

8. The Commission agrees:—

(*a*) The Engineer shall, pursuant to paragraph 14 (*a*) of the General Conditions, give his order to the Contractor to proceed with the works, as soon as possible, and not later than the first day of June, 1909.

(*b*) To pay to the Contractor, for said equipment, upon the terms and conditions set forth in the said General Conditions and Specifications, the amounts set opposite the name of the said stations, as follows:—
Niagara Falls, $137,599. Dundas, $71,217.
Relay system for Toronto, London, Guelph, Stratford, St. Thomas, Woodstock, Berlin, St. Mary's, Preston, $54,468.

9. It is further agreed:—

(*a*) That the Contractor will, within a time specified in writing by the said Engineer, supply the Commission with data and details of all electrical characteristics for the said equipment, and the Commission will, upon request in writing, supply the Contractor with such data and details of electrical power and equipment to be supplied to the Commission by any other Contractor or parties.

(*b*) If the Contractor does not, in the opinion of the said Engineer, carry on the works with sufficient speed to complete the work at said dates, the Commission may, at its option, be released from this agreement, and the Contractor shall, upon notice in writing, immediately discontinue the works, and if required by the said Engineer, the Contractor shall immediately remove the whole or any part of the said equipment, to be specified by the Engineer, that has been delivered to the Commission, and the Commission may, at its option, proceed with the said works. The Commission shall not be liable for any loss, costs or damage arising before or after the release of the Commission from this agreement.

(*c*) All the rights and remedies of the Commission and of the Engineer, acting on their behalf, may be exercised and continued concurrently or in the alternative.

(*d*) If within twelve months from the date of the final certificate of the Engineer, it appears that unsound or defective material has been used by the Contractor, or the said works have not been executed in a substantial, proper, and workmanlike manner, the Contractor shall be liable to the Commission for all damages arising therefrom. No certificate payment, or other act, matter or thing done or omitted under this contract shall bar or prejudice the rights of the Commission in this respect.

(*e*) Time shall be of the essence of this agreement.

(*f*) For all purposes of this contract, notices shall be served upon the Engineer, or his appointee, in writing for the Commission, and upon the Manager, or his appointee, for the Contractor.

(*g*) In case any municipal corporation which shall contract with the Commission for a supply of power, or any person, firm, or corporation which shall contract with any such municipal corporation, or with the Commission, for a supply of power, shall suffer damages by breach of this contract by the Contractor, and such municipal corporation, firm, person or corporation would, if the Contractor had made this contract directly with them, have had a right to recover such damages, or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings, or bring such action for, or on behalf of, such municipal corporation, person, firm, or corporation, and, notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm, or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm, or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid. The rights and remedies of any such municipal corporation, person, firm, or corporation shall not be hereby prejudiced.

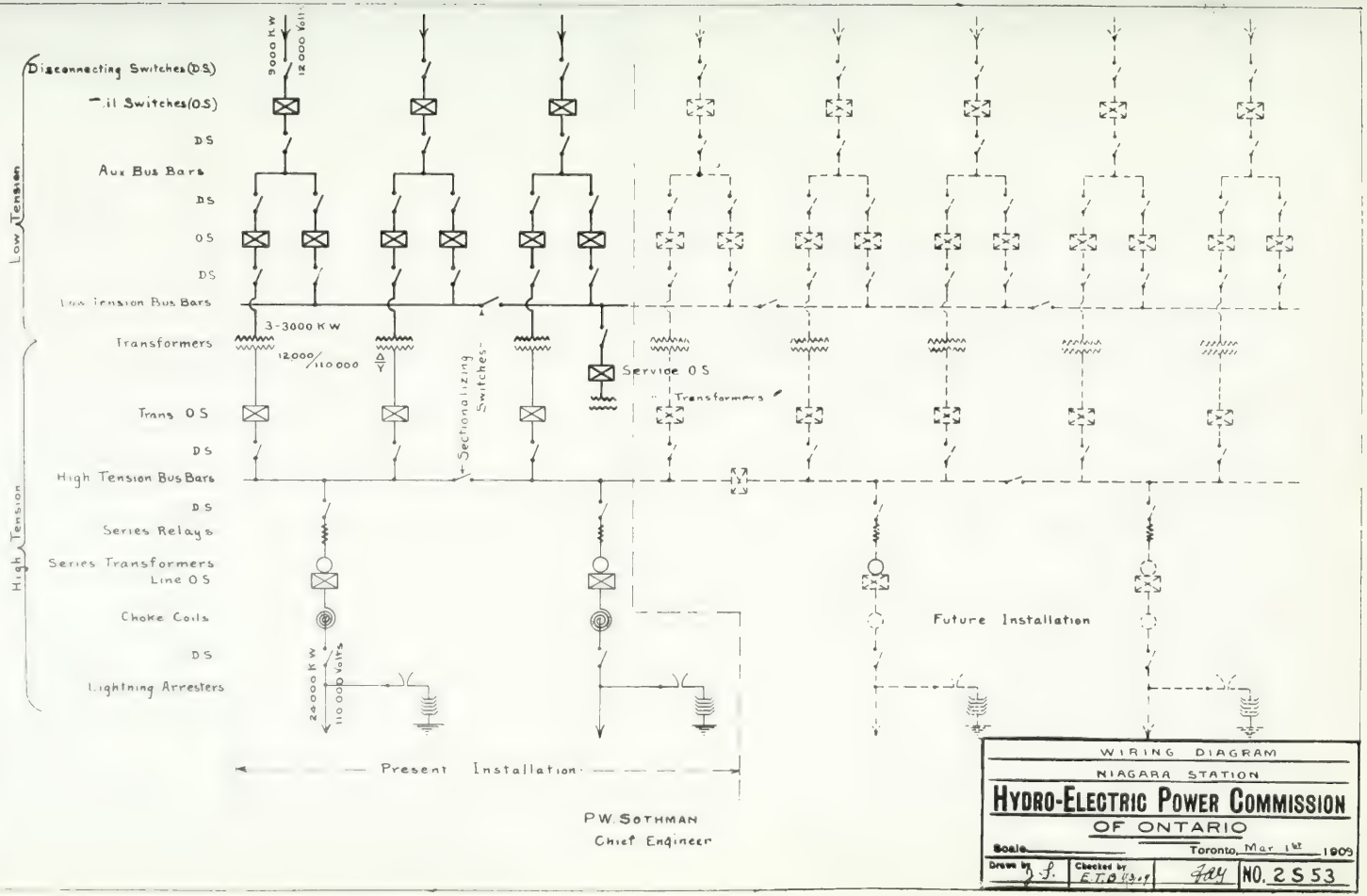
10. Neither party shall be liable for damages for breach of contract caused by strikes, lock-outs, accidents, riots, fires, explosions, acts of God, war, or any other cause, reasonably beyond its control, and should any delay in the performance of this contract be caused to either party thereby, the Contractor shall not be bound to deliver or the Commission shall not be bound to accept equipment during such time, and the time for performance of this contract by both parties shall be correspondingly extended.

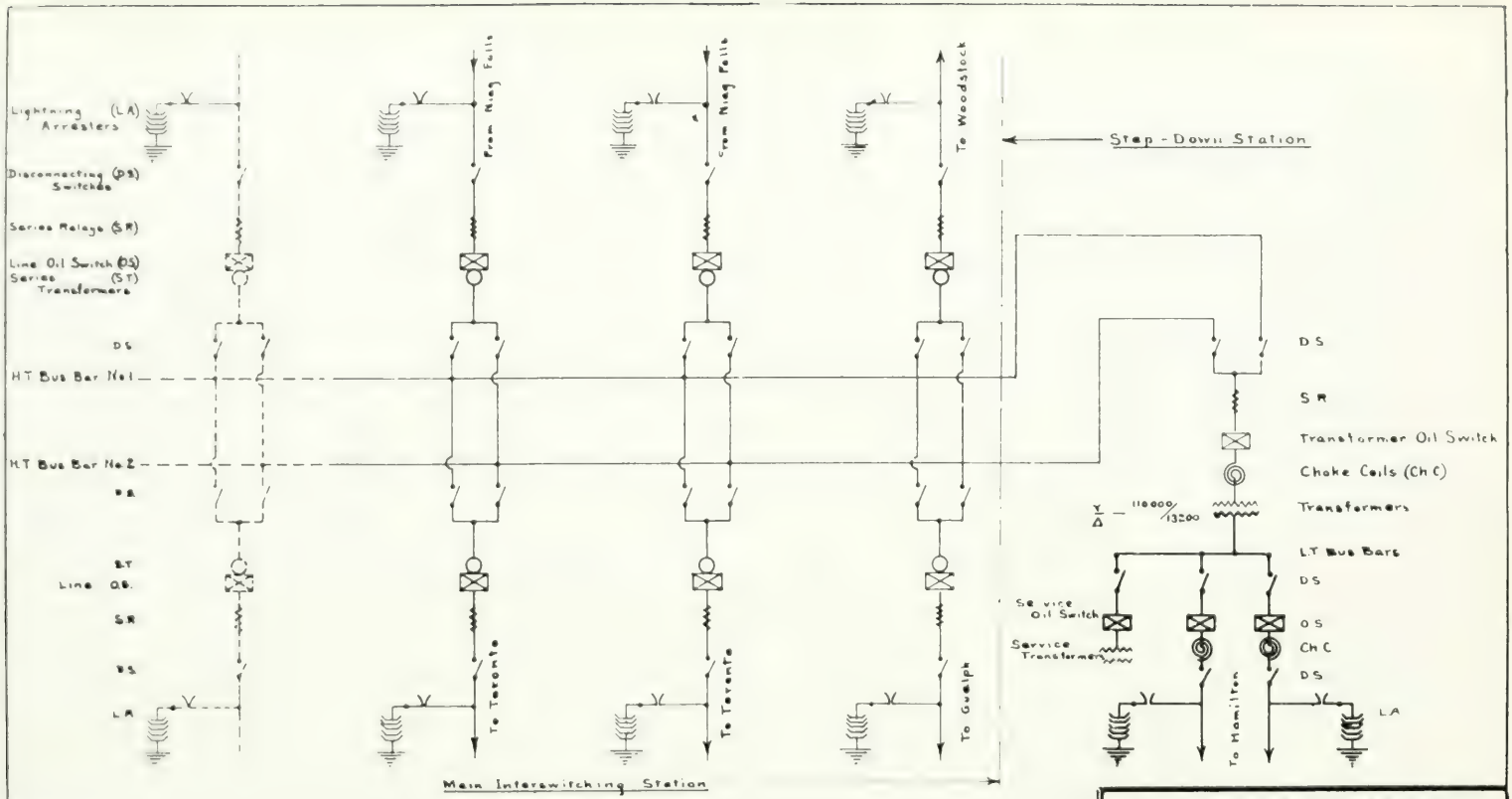
Provided further that the parties shall be prompt and diligent to remove the cause or causes of interruption, in so far as they are able, and when such interruption shall have ceased, the parties shall be prompt and diligent to perform the contract.

Provided that in construing this paragraph the doctrine of *ejusdem generis* shall not be applied.

11. (*a*) If any difference shall arise during the progress or after the completion of the works, as to any matter or thing arising under or out of this contract, such difference shall be referred to two arbitrators, one to be chosen by each of the parties hereto, and they shall choose a third arbitrator, but if they cannot agree, such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible the arbitrators shall decide such difference in a summary manner. Either party may appeal from any award of the arbitrators, as provided by the Arbitration Act, R.S.O., Chap. 62, but no such appeal shall be carried beyond the decision of the Court of Appeal of Ontario.

(*b*) The arbitrators shall not consider any matter or difference which is expressly or by implication required or permitted to be decided by the


Disconnecting Switches(DS)
Oil Switches(OS)
DS
Aux Bus Bars
DS
OS
DS
Low Tension Bus Bars
Transformers
Trans OS
DS
High Tension Bus Bars
DS
Series Relays
Series Transformers
Line OS
Choke Coils
DS
Lightning Arresters
Low Tension
High Tension
9000 K.W.
12000 Volts
3-3000 K.W.
12000/110000
Sectionalizing Switches
Service OS
Transformers
24000 K.W.
110000 Volts
Future Installation
Present Installation
P.W. SOTHMAN
Chief Engineer
WIRING DIAGRAM
NIAGARA STATION
HYDRO-ELECTRIC POWER COMMISSION
OF ONTARIO
Scale
Toronto, Mar 1st 1909
Drawn by J.S.
Checked by E.T.O.
NO. 2553



Note:-

Present Installation ———

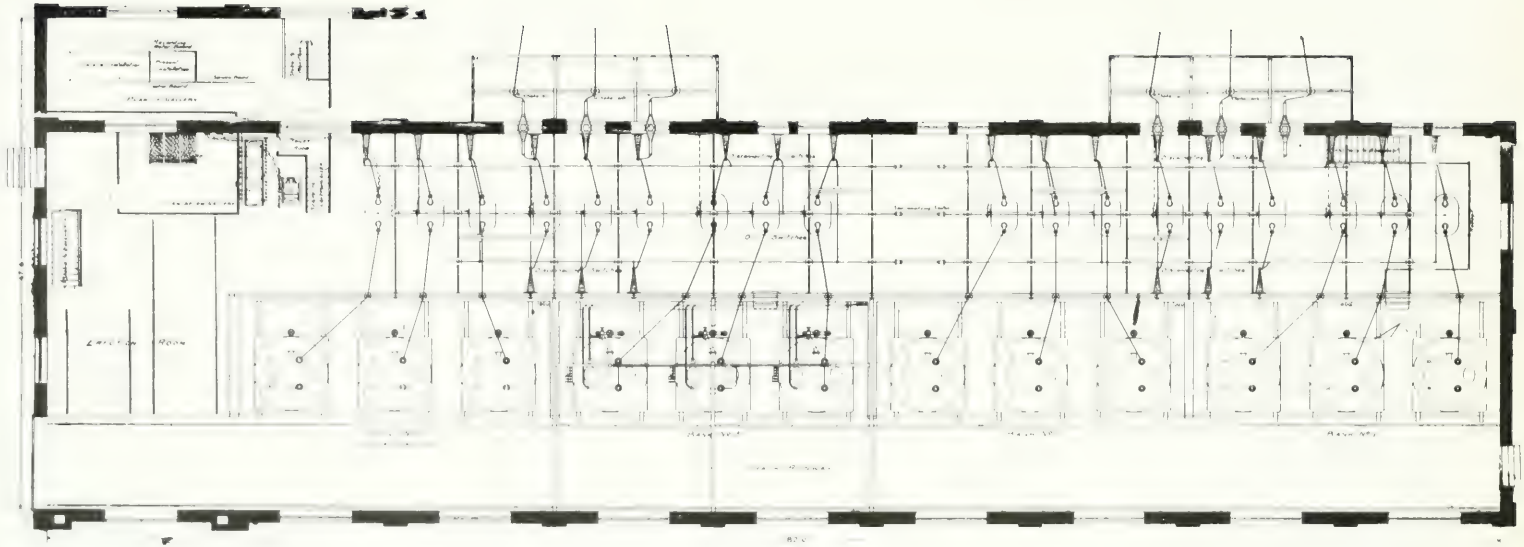
Future " - - - - - -

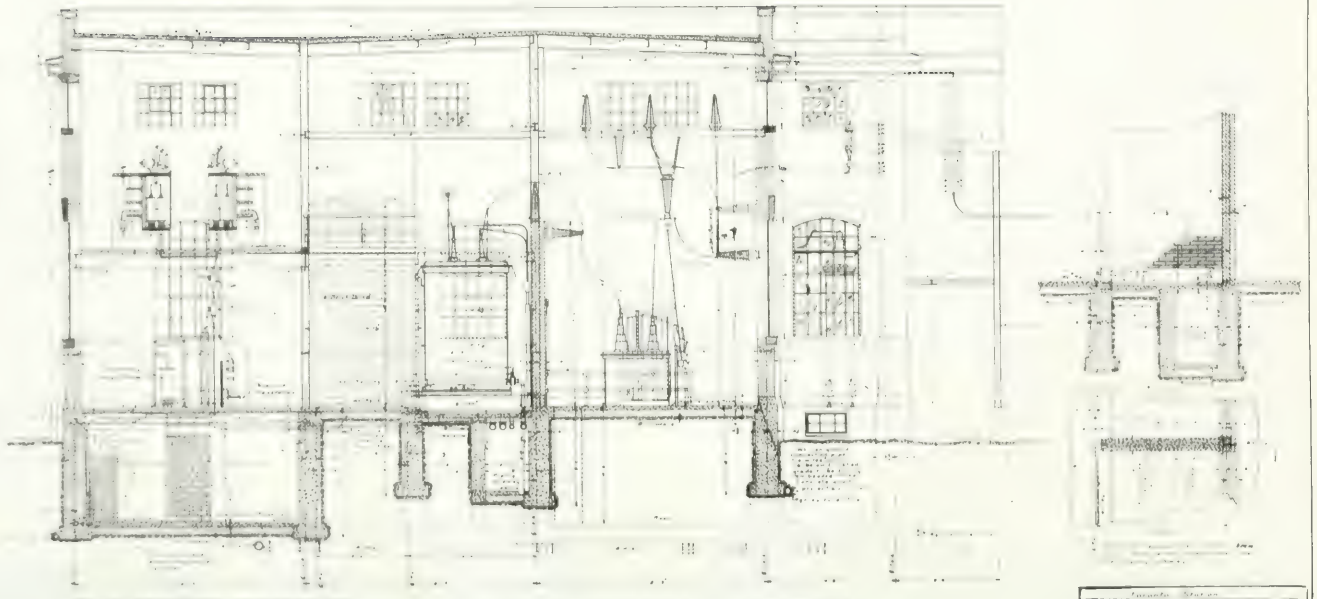
P.W. SOTHMAN
Chief Engineer

WIRING DIAGRAM
DUNDAS STATION
HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

Scale — Toronto, Mar 18th 1909

Drawn by	Checked by		NO. 2-S-54
J.J.	E.T.B./J.H.J.	214	





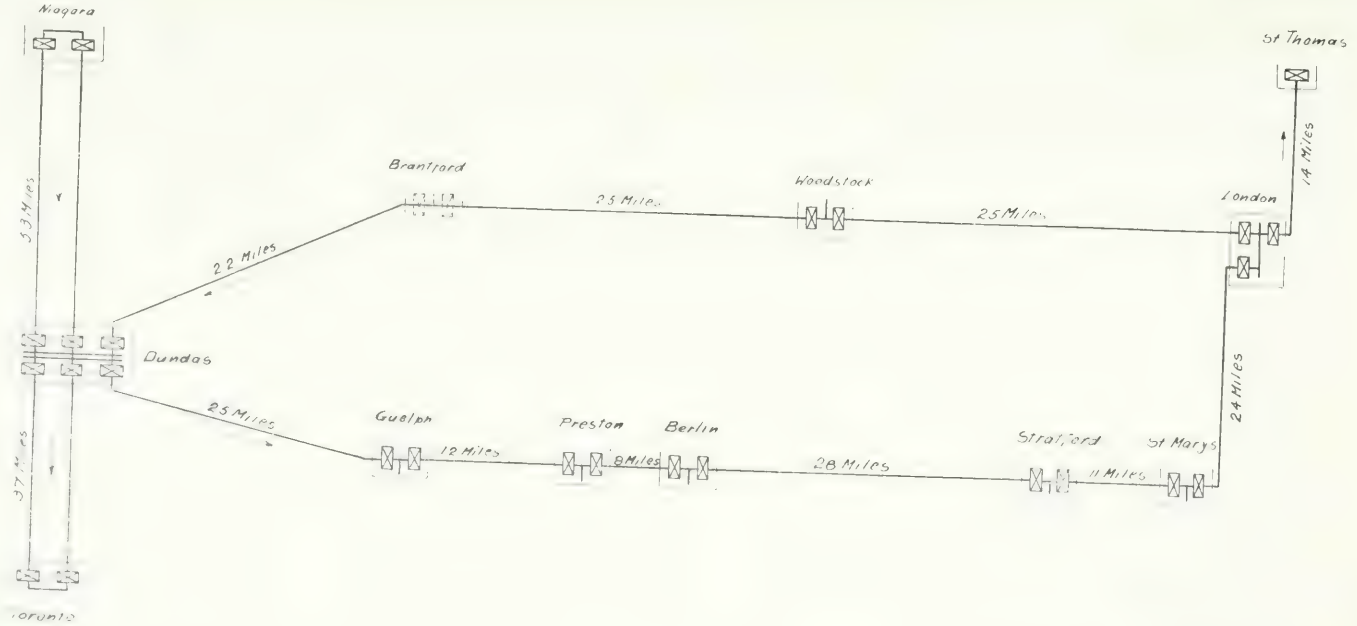
Note: Do not use this drawing for supply & electrical installation

P W SOTHMAN
Chief Engineer

Revised Jan 17th 1946

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

No 45 3027



Present Installation ———
Future Installation - - - -

P W SOTHMAN
Chief Engineer

Note Distances between stations are approximate

Diagram Showing Line Switches of Differential Relay System

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

Scale. Toronto, March 3rd 1909

Drawn by J.S. | Checked by C.T.B. | Init. | NO. 2542

Engineer, or as to the grounds upon which, or mode in which, any opinion may have been formed, or discretion exercised, by the Engineer. If any such matter or difference shall arise, and the Contractor claims that such matter or difference should be determined by arbitrators, the Contractor may apply in writing to the Commission, to waive this paragraph 11 (*b*) : thereupon the Commission shall appoint a time and place to hear any representations of the Engineer or Contractor, and the Commission may, in its sole discretion, waive the provisions of this paragraph 11 (*b*), and permit the said matter or difference to be referred under paragraph 11 (*a*) to said arbitrators.

12. This agreement shall extend to, be binding upon, and enure to the benefit of the executors, administrators, and assigns of the said parties.

In Witness Whereof the Commission and the Contractor have respectively affixed their corporate seals and the hands of their proper officers.

Hydro-Electric Power Commission of Ontario.

A. Beck.

[Seal] John S. Hendrie.

Canadian Westinghouse Company, Limited.

Paul J. Myler, *Vice-President.*

[Seal] Jno. H. Kerr, *Secretary.*

Mechanical Equipment.

The travelling cranes, oil tanks and heating boilers are the only auxiliary features which have as yet been provided for. These were considered the most important because they either had a bearing on the design of the buildings or required installation simultaneous with the buildings.

The heating and lighting systems, water pumps, oil pumps, and compressors and the necessary wiring and piping systems, are all receiving consideration and specifications are being prepared.

Specifications for travelling cranes were issued in August and tenders were received from manufacturers of cranes in Canada, England and the United States. A full consideration of the different tenders resulted as follows:—Royce Limited, Manchester, England, will supply a 45-ton electric hoist crane for each Niagara Falls and Dundas, and Mussens Limited, of Toronto, will supply a 25-ton hand power crane for each Toronto, London, Guelph, Preston, Berlin, Stratford, St. Mary's, Woodstock and St. Thomas. The tabulated tenders follow:—

Form of Tender Attached to Specifications for Cranes for Transformer Stations—C. 90,719.

....., the undersigned, hereby offer the Hydro-Electric Power Commission of Ontario to furnish all the necessary material, labor, tools, machinery and other plant, and to execute and complete in a satisfactory and

workmanlike manner all work required in connection with the manufacture and shipment of cranes, all according to the specifications and drawings exhibited to ..... complete for the sum of ..... Dollars ($), the price for the cranes for the different stations being as follows:—

Niagara Falls	$
Dundas	$
Toronto	$
London	$
Guelph	$
Preston	$
Berlin	$
Stratford	$
St. Mary's	$
Paris	$
Woodstock	$
St. Thomas	$

..... further guarantee if the contract for these cranes is awarded to ..... to ship the crane for Niagara Falls within six weeks and for Dundas within seven weeks, on the receipt of order, and one crane every seven days thereafter until all cranes are shipped.

..... further offer to deduct from the lump sum, the amount stated for the crane for Paris station if the Commission decides not to order one for that station.

..... herewith submit detail specifications, sketches showing the clearance, wheel loads and bases, general outline, etc., of each crane ..... propose furnishing.

..... further hold ..... ready to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work at the rates and on the terms herein stated.

..... hereby certify that ..... have carefully investigated all conditions and items of cost which may or can enter into the cost of the work to .....

Signed .....

P. O. Address .....

.....

.....

Dated .....

.....

HYDRO-ELECTRIC POWER COMMISSION.

TENDERS FOR TRANSFORMER STATION CRANES—OPENED SEPTEMBER 9TH, 1909.

Tenderer.	Niagara Falls.	Dundas.	Toronto.	London.	Guelph.	Preston.	Berlin.	Stratford.	St. Mary's.	Paris.	Woodstock.	St. Thomas.	Total.	Deliveries. Weeks.
	$	$	$	$	$	$	$	$	$	$	$	$	$	
1. Canada Foundry Company	3,875	1,833	1,688	1,698	1,683	1,686	1,689	1,695	1,698	1,689	1,695	1,698	22,627	N. F. 6 weeks D. 7 weeks 1 per week
2. Manning, M. & M.	3,335	1,400	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	17,985	do do
3. Stother & Pitt	3,600	1,750	1,585	1,604	1,604	1,604	1,604	1,604	1,604	1,604	1,604	1,604	21,371	N. F. 10 weeks D .9 weeks 1 per week
4. Royce, Limited	3,150	2,362	2,021	2,045	2,021	2,021	2,021	2,045	2,045	2,045	2,045	2,045	25,833	N. F. 7 weeks D. 8 weeks 1 per week
5. Whiting	2,070	850	790	790	790	790	790	790	790	790	790	790	10,810	N. F. 6 weeks D. 7 weeks 1 per week
6. Sellers	5,645	2,075	1,895	1,864	1,864	1,864	1,864	1,864	1,864	1,863	1,864	1,864	26,390	N. F. 11 weeks D. 12 weeks 1 per week.
7. Dominion Bridge	3,400	1,800	1,675	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	22,175	N. F. 12 weeks D. 8 weeks 1 per week
8. Brown-Hoist	6,885	3,265	3,085	3,080	3,090	3,090	3,090	3,090	3,090	3,085	3,085	3,085	41,020	N. F. 7 weeks 2 per week
9. Massens Northern	3,675	1,295	1,115	1,145	1,145	1,145	1,145	1,145	1,145	1,145	1,145	One possibly 1,145 1 per week	16,900	D. 7 weeks N. F. 7 weeks
10. Babcock & Wilcox	4,753	2,127	2,127	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	28,240	N.F. 8-D. 12 weeks 1 per week
11. Wilcox, E. M.	5,900	2,643	2,643	2,643	2,643	2,643	2,643	2,643	2,643	2,643	2,643	2,643	35,000	N. F. 6-D. 7 weeks 1 per week
12. Canadian Fairbanks	3,295	1,190	1,075	1,155	1,155	1,155	1,155	1,155	1,155	1,155	1,155	1,155	15,955	N. F. 6 weeks D. 7 weeks 1 per week

After due consideration of all the tenders submitted, contracts were awarded

Niagara Falls—Royce, Limited, England	$3,150
Dundas—Royce, Limited, England	3,150
Toronto—Mussens, Limited, Toronto	1,115
London— " " "	1,145
Guelph— " " "	1,145
Preston— " " "	1,145
Berlin— " " "	1,145
Stratford— " " "	1,145
St. Mary's— " " "	1,145
Woodstock— " " "	1,145
St. Thomas " " "	1,145
Total	$16,575

After specifications were issued it was found that it would be necessary to supply a crane for Dundas similar to that at Niagara. This was purchased from Royce, Limited, at the same price as the Niagara crane.

Specifications for Heating Boilers.

The specifications for station heating boilers were written and sent out to the various manufacturers during the latter part of September. Tenders based upon the supply of return Tubular Boilers were received on October 4th, but later new tenders were asked for covering cast iron Sectional Boilers as an alternative. The new tenders have been received, but no contracts have yet been placed.

No boiler will be required for the Woodstock station, as steam for heating will be obtained from the boilers already installed in the present pumping station.

A tabulated list of the tenders received is given on page —

Form of Tender Attached to Specifications for Boilers for Heating of Stations.

....., the undersigned, hereby offer the Hydro-Electric Power Commission of Ontario, to furnish all the necessary materials, tools, machinery and other plant and to execute and complete in a satisfactory and workmanlike manner all work required in connection with the manufacture, shipment, and erection complete of boilers, all according to the specifications exhibited to ..... for the sum of ..... Dollars ($) for coal fired boilers, or for the sum of ..... Dollars ($) for gas fired boilers: the price for the boilers for the different stations being as follows:—

——	For Coal Fired Boilers.	For Gas Fired Boilers.
Niagara Falls	($)	($)
Dundas	($)	($)
Toronto	($)	($)
London	($)	($)
Guelph	($)	($)
Preston	($)	($)
Berlin	($)	($)
Stratford	($)	($)
St. Mary's	($)	($)
Paris	($)	($)
St. Thomas	($)	($)

Type of boilers shall be ..... according to the enclosed photographs and drawings.

..... further agree to furnish boilers as required and ship same f.o.b. railway sidings, but not including haulage to station site or erection, for the following prices:—

——	For Coal Fired Boilers.	For Gas Fired Boilers.
Niagara Falls	($)	($)
Dundas	($)	($)
Toronto	($)	($)
London	($)	($)
Guelph	($)	($)
Preston	($)	($)
Berlin	($)	($)
Stratford	($)	($)
St. Mary's	($)	($)
Paris	($)	($)
St. Thomas	($)	($)

..... guarantee if the contract for these boilers is awarded to ..... to ship the boilers for Niagara Falls, Dundas and Toronto, within six weeks, and for London within seven weeks from the date of receipt of order, and one boiler every week thereafter until all are shipped.

..... further offer to deduct from the lump sum, the amount stated for the boiler for Paris station, if the Commission decides not to order one for that station.

..... herewith submit detail specifications, sketches showing arrangement, general dimensions, etc., of each boiler .....propose furnishing.

..... further hold ..... ready to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work at the rates and on the terms herein stated and ..... further agree to furnish security for the due performance of the contract in a bond for 25 per cent. of the amount of the entire contract, with satisfactory sureties.

..... herewith enclose an accepted bank cheque payable to the order of the Chairman of the Hydro-Electric Power Commission of Ontario, for the sum of ..... dollars ($), being 5 per cent. of the amount of the entire contract.

..... hereby certify that ..... have carefully investigated all conditions and items of cost which may or can possibly enter into the cost of the work to .....

Signed .....

P. O. Address .....

.....

....

Dated .....

HYDRO-ELECTRIC POWER COMMISSION. TENDERS FOR HEATING BOILERS.

Contractor.	Niagara Falls.	Dundas.	Toronto.	London.	Guelph.	Preston.	Berlin.	Stratford.	St. Mary's	Paris.	St. Thomas.	Type.	Totals.	Remarks.
	$	$	$	$	$	$	$	$	$	$	$		$	
Pease Foundry Co.	424	424	424	377	310	310	310	310	310	310	310	Cast iron.	3,819	Erected. Coal fired.
Gurney " "	305	305	300	265	198	200	203	205	210	210	210	Cast iron.	2,611	" "
King Radiator "	304	304	304	277	241	241	241	241	241	241	241	Cast iron.	2,870	" "
Dominion Radiator Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	230	.....	Cast iron.	2,864	Erected to burn hard coal or gas.
" " "	.....	.....	.....	.....	.....	.....	.....	.....	.....	256.75	.....	Cast iron.	3,242	Erected to burn soft coal.
Taylor-Forbes Co.	327.67	342.95	333.50	300.75	243.25	247.61	239.61	250.04	255.52	255.04	251.43	Cast iron.	3,047.37	Erected.
E. Leonard	259	257	260	230	207	207	206	205	205	206	204	Vertical tube.	2,446	Gas or coal fired.
Goldie & McCulloch	297	295	296	251	216	215	216	218	219	217	220	Vertical tube.	2,660	Coal fired.
" "	322	320	321	276	241	240	241	243	244	242	245	Vertical tube.	2,935	Gas fired.
Canada Foundry Co.	449	446	436	390	325	325	326	328	328	326	329	Vertical tube.	4,008	Coal fired.
John Inglis Co.	395	390	360	365	285	288	295	300	300	295	305	Vertical tube.	3,578	" "
Jenckes Machine Co.	348	351	354	329	247	246	248	248	249	246	249	Vertical tube.	3,115	" "
" " "	373	376	379	354	272	271	273	273	274	271	274	Vertical tube.	3,390	Gas fired.
R. Whitelaw	290	290	290	245	245	245	245	245	245	245	245	Vertical tube.	2,830	Coal fired.
" "	447	445	448	415	317	318	317	318	317	318	317	Vertical tube.	3,977.50	" "
" "	475	470	475	435	340	340	340	340	340	340	340	Return tubular horizontal.	4,235	Gas fired.
E. Leonard	434	432	435	400	360	360	360	360	349	350	348	Return tubular horizontal.	4,188	Coal or gas fired.
Geo. White	693	689	695	545	499	499	497	495	495	494	492	Return tubular horizontal.	6,096	.....
Goldie & McCulloch	365	361	363	294	277	276	277	279	280	298	282	Return tubular horizontal.	3,332	Coal fired } F.O.B. Cars.
" "	390	386	388	319	302	301	302	304	305	303	307	Return tubular horizontal.	3,607	Gas fired } F.O.B. Cars.
Canada Foundry Co.	621	711	669	652	555	558	558	560	561	558	562	Return tubular horizontal.	6,565	Coal fired.
" " "	705	795	752	731	632	635	635	637	638	635	639	Return tubular horizontal.	7,434	Gas fired.
John Inglis Co.	630	610	555	615	.....	.....	.....	.....	.....	.....	.....	Return tubular horizontal.	.....	Coal fired.
Jenckes Machine Co.	680	684	688	577	565	564	566	566	567	564	567	Return tubular horizontal.	6,587	" "
" " "	695	699	703	593	585	584	586	586	587	584	587	Return tubular horizontal.	6,789	Gas fired.

Specifications for Oil Tanks.

Specifications and drawings were issued in July for steel tanks required for the storage of transformer oil in each of the Commission's stations. These tanks are to be of the plain cylindrical type, and two will be located in each of the station basements, one to receive untreated oil and the other to receive and store clean or treated oil.

Tenders were received from several manufacturers on August 20th for this work and contracts were immediately let as follows:—

To E. Leonard & Sons, of London, Ont., tanks for the stations at London, Stratford, St. Mary's, Woodstock and St. Thomas, with a 10 months' option for the supply of tanks for the Paris station.

To Goldie & McCulloch, Ltd., of Galt, tanks for the stations at Niagara Falls, Dundas, Guelph, Preston and Berlin.

To Polson Iron Works, Ltd., of Toronto, tanks for the Toronto station.

Tenders and contracts for the tanks are appended below.

Hydro-Electric Power Commission of Ontario. Form of Tender Attached to Specifications for Oil Storage Tanks for Transformer Stations —T. 90,718.

....., the undersigned, hereby offer the Hydro-Electric Power Commission of Ontario, to furnish all the necessary materials, labor, tools, machinery and other plant, and to execute and complete in a satisfactory and workmanlike manner all work required in connection with the manufacture, testing and shipment of oil tanks, all according to the specifications and drawings exhibited to ..... complete for the sum of ..... dollars ($), the price for the tanks for the different stations being as follows:—

Niagara Falls.....	$.....	Berlin	$.....
Dundas.....	$	Stratford.....	$.....
Toronto	$.....	St. Mary's	$..... .....
London	$.....	Paris	$.. .....
Guelph	$.....	Woodstock	$..... ..
Preston.....	$.....	St. Thomas.....	$.....

..... further guarantee if the contract for these tanks is awarded to ..... to ship the tanks for Niagara Falls within ..... weeks and for Dundas within ..... weeks of the receipt of the order, and two tanks every ..... days thereafter, until all tanks are shipped.

..... further offer to deduct from the lump sum the amount stated for the tanks for Paris station if the Commission decides not to order these for that station.

..... herewith submits sketches showing the sizes of plates, reinforcements, etc., of each tank ..... propose furnishing.

..... further hold ..... ready to enter into a contract in form satisfactory to the Commission for the due and proper execution of the work at the rates and on the terms herein stated.

..... hereby certify that .....have carefully investigated all conditions and items of cost which may or can enter into the cost of the work to .....

Signed .....

.....

.....

Dated .....

HYDRO-ELECTRIC POWER COMMISSION—TENDERS FOR OIL STORAGE TANKS.

	Niagara.	Dundas.	Toronto.	London.	Guelph.	Preston.	Berlin.	Stratford.	St. Mary's.	Paris.	Woodstock.	St. Thomas.	Shipments. Niagara.	Shipments. Dundas.	Shipments. Delivery.	Bulk.	Plates.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.				$ c.	In.
E. Leonard & Sons, No. 110 safe	612 00	606 00	440 00	417 00	436 00	432 00	432 00	428 00	426 00	430 00	426 00	424 00	6 weeks	8 weeks	2 each week	5,599 00	7/16 and 3/8
No. 151 safe	762 00	756 00	564 00	541 00	560 00	556 00	556 00	552 00	550 00	554 00	550 00	548 00	6 weeks	8 weeks	2 each week	7,049 00	19/32 & 17/32
R. Whitelaw, Woodstock	.....	.....	.....	.....	.....	790 00	790 00	790 00	790 00	790 00	775 00	790 00	.....	.....	2 every 10 days	4,515 00	3/8
Goldie & McCulloch, No. 100 working	588 00	578 00	460 00	460 00	430 00	430 00	430 00	456 00	458 00	452 00	456 00	462 00	6 weeks	6 weeks	2 every 10 days	5,660 00	
*Waterous Engine Works	924 00	924 00	736 00	736 00	736 00	736 00	736 00	736 00	736 00	736 00	736 00	736 00	.....	.....	.....	.....	1/2
Toronto Iron Works	955 68	955 68	792 20	842 20	826 00	828 70	834 58	836 80	839 50	831 40	834 58	842 20	5 weeks	6 weeks	2 every 6 days	10,026 52	9/16 and 5/8
Jenckes Machine Co.	586 00	594 00	494 00	506 00	498 00	494 00	502 00	502 00	506 00	494 00	498 00	506 00	4 weeks	5 weeks	2 every week	6,180 00	3/8
(Revised Tender, rec'd Aug. 28, '09)	574 00	578 00	472 00	478 00	474 00	472 00	476 00	476 00	478 00	472 00	474 00	478 00	4 weeks	5 weeks	2 every week	5,902 00	3/8
John Inglis Co.	950 00	945 00	710 00	700 00	705 00	705 00	710 00	710 00	710 00	705 00	710 00	710 00	4 weeks	5 weeks	2 every 4 days	8,970 00	7/16 and 1/2
" " "	710 00	705 00	580 00	580 00	570 00	570 00	580 00	580 00	580 00	570 00	580 00	580 00	4 weeks	5 weeks	2 every 4 days	7,185 00	3/8
Canada Foundry Co.	684 00	677 00	525 00	551 00	541 00	543 00	545 00	549 00	551 00	545 00	549 00	551 00	8 weeks	8 weeks	2 every 15 days	6,811 00	7/16
Polson Iron Works	858 00	852 00	435 00	480 00	470 00	472 00	474 00	478 00	480 00	474 00	478 00	480 00	7 weeks	7 weeks	2 every 4 days	6,431 00	7/16 and 3/8

* F.O.B. Brantford.

After due consideration of the merits of the different tenders, contracts for tanks were finally awarded the following firms:—

To E. Leonard & Sons:		
For London—2 tanks	$417	
Stratford—2 tanks	428	
St. Mary's—2 tanks	426	
Woodstock—2 tanks	426	
St. Thomas—2 tanks	424	
Total		$2,121
Paris is optional at	$430	
Total with Paris	$2,551	
To Goldie & McCulloch:		
For Niagara Falls—2 tanks	$588	
Dundas—2 tanks	578	
Guelph—2 tanks	430	
Preston—2 tanks	430	
Berlin—2 tanks	430	
Total		2,456
To Polson Iron Works:		
For Toronto—2 tanks	$435	
		435
Grand total		$5,012 without Paris.

III. MUNICIPAL WORK.

Municipal Department.

The Municipal Department was organized to look after the interests of the municipalities, to help those municipalities that have contracted for power, to make up estimates for those that wish information on the cost of power, cost of municipal distribution, etc., and to give engineering aid and advice to municipalities who propose to make contracts with power companies.

Taking these three divisions in reverse order, the work done is as follows:—

Madoc: They planned to contract for power with a power transmission company and we wrote several letters answering their questions regarding various points in the proposed contract.

Weston: A representative from Weston secured information from the Engineering Department on the possible methods of furnishing that town with power.

Aylmer-Ayr-Doon: Representatives have called and explained the method of securing power from the transmission line, have left model by-laws, and volunteered any information needed. The following is a blank by-law submitted:—

Model.

By-Law to Submit a Question.

City of.....

By-Law No.....

To take the vote of the ratepayers of the City of..... entitled to vote on money by-laws on a question to be submitted whether the said ratepayers are in favor of a supply of electric power from the Hydro-Electric Power Commission of Ontario.

Whereas the Municipal Council of the Corporation of.....deems it advisable to submit to the ratepayers of the said City of..... entitled to vote on money by-laws a question as to whether the said ratepayers are in favor of a supply of electric power from the Hydro-Electric Power Commission of Ontario;

Therefore the Council of the Corporation of the City of ..... enacts as follows:—

1. That the following question be submitted to the ratepayers of the Municipal Corporation of the City of.....entitled to vote on money by-laws:

Are you in favor of obtaining from the Hydro-Electric Power Commission of Ontario a supply of electric power?

2. That the votes of said ratepayers shall be taken on this question at the following times and places and by the Deputy Returning Officers and Poll Clerks hereinafter mentioned, that is to say (set out here, day and hour for taking vote, polling divisions, wards, names of Deputy Returning Officers, Poll Clerks, places of voting). The date fixed for vote not to be less than three nor more than five weeks after first publication of this by-law. (See Sec. 338 of Municipal Act.)

3. A true copy of this by-law shall be published in the following newspapers on the days hereinafter mentioned, that is to say (follow ss. 2, Sec. 338, Municipal Act), and a copy of this by-law shall be posted at (name four most public places for posting).

4. On the .....day of.....at his office in the Council Chamber, on.....in the City of.....at..... o'clock noon, the Mayor will in writing signed by him appoint two persons to attend at the final summing up of the votes by the Clerk of this Corporation and one person to attend each polling place on behalf of the persons interested in and desirous of the answering of the said question in the affirmative and a like number on behalf of the persons interested in and desirous of the answering of the said question in the negative, respectively.

5. The.....day of.....at the said Council Chamber .....at.....o'clock, is hereby appointed for the summing up by the Clerk of this Corporation of the number of votes given in the affirmative and in the negative, respectively.

Made, passed and enacted this ..... day of .....

.....*Mayor.*

.....*Clerk.*

NOTICE.

Take notice the above is a true copy of a by-law passed by the Municipal Council of the City of.....on the.....day of.....

And further take notice that at the hour, day and places therein fixed for taking votes of the electors the polls will be held.

First publication.....day of.....

.....*City Clerk.*

Council Chamber,.....day of.....

Estimates, Etc.

Under the second heading, that is making up estimates for those who wish information on the cost of power, cost of municipal distribution, etc., the following work has been done:

Brampton, Milton, Acton and Georgetown: At the request of these municipalities estimates were made of the cost of 24-hour power delivered to their town limits at 13,200 volts in the following quantities:

Georgetown	for 800 h.p.....	$27.17	per horse	power	per annum.
Brampton	" 800 h.p.....	28.93	"	"	"
Milton	" 500 h.p.....	38.56	"	"	"
Acton	" 600 h.p.....	30.46	"	"	"
	2,500 h.p.				

These prices are based on a double circuit 110,000 volt line from Trafalgar (on the main Dundas to Toronto line) to Georgetown, with an interswitching station at Trafalgar and a step-down station at Georgetown, from which point the power is distributed to the above municipalities at 13,200 volts.

The above amounts include all costs of transmission, transformation and distribution and power at Niagara Falls at $9.40, which will be reduced to $9.00 as soon as the quantity taken by the Commission exceeds 25,000 horse power.

These prices were submitted to the municipalities on April 19th, 1909.

A canvass was made of the towns showing the following demand for power in this district:

	Total Demand.	Maximum safe amount to be contracted for.
Acton.....	135	75
Brampton..	...	400
Georgetown	277	250
Milton	715	500
		1,225

Ridgetown: The power conditions were investigated, but no estimates were requested. The data are at hand when needed.

Windsor: A power canvass was made of Windsor City in the early part of the year, showing a demand for about 1,100 horse power. Estimates were made of the capital costs of apparatus, etc., for transformation, distribution of power, also for street and house lighting, which are reproduced herewith.

Toronto, March 31st, 1909.

Estimate for Windsor.

Capital cost of 2,000 horse power switching apparatus in city station, equals	$9,123.00
Capital cost of power distribution system in the city to serve 1,056 horse power in connected motor-load. (Feeders and lines of 2,000 horse power capacity.) (426 horse power of this for water works pumps, during fires.) Equals.....	24,582.00
Capital cost of street lighting system consisting of 110 arcs and 450 80-candle-power Tungstens with necessary station equipment, equals.....	42,849.00

Capital cost of incandescent lighting system to serve 10,000 16-candle-power equivalent, with necessary station equipment, equals..... 42,500.00

Walkerville: A power canvass was made of the town, showing a total demand for about 1,300 horse power.

Sandwich: A power canvass was made of this village, showing a total demand for about 60 horse power.

Elmira: Estimates were made and sent to Elmira, giving the capital cost and annual charges on both single and double circuit transmission lines from Waterloo at 13,200 volts, cost of station equipment for both single and double circuit incoming lines and the cost of distribution of power and street lighting. These estimates are given below. A power canvass was also made of the town and data on cost of electrical apparatus secured and sent there.

ESTIMATE No. 1.

Prices of 13,200 Volt Power to Elmira.

	Capital Cost.		Annual Charges.
Estimated for 225 H.P.	$		$
11 miles double circuit No. 6 wire pole line, at $1,700.00.....	18,700	6	1,122
Measuring instruments in Elmira	1,442	6	87
Disconnecting Station on poles at Waterloo.....	415	6	25
	20,557	.....	1,234
Engineering and Contingencies, 10 per cent.....	2,056	.....	123
	22,613	.....	1,357
Interest during construction, 3 per cent	676	.....	.....
	23,291	.....	.....
Interest at 4 per cent., Sinking Fund at 1.8 per cent. on $23,291.00..	.....	.....	1,351
Line loss H.P. at $9.40.....	.....	.....	38
Operating at $40 per mile.....	.....	.....	440
Total Annual Cost to transmit 225 H.P.....	.....	.....	3,186

Cost per H.P., $14.16. Total cost of power to Elmira: $24.50 + $14.16 = $38.66. Total cost per H.P. to build, $103.52.

July 8th, 1909.

ESTIMATE NO. 2.

Cost of Distribution in Elmira.

	Capital Cost.	%	Annual Charges.
Material needed in Station is:	$		$
2 Incoming line panels, 13,200 V., at $600	1,200	6	72
4 Sets disconnecting Switches, 13,200 V	360	6	22
3 100 K.W. 13,200/2,200 V. step-down transformers	4,200	6	252
3 2,200 V. outgoing feeder panels, at $400	1,200	6	72
3 Sets 2,200 V. Lightning Arresters, at $50	150	6	9
1 Potential Transformer on 2,200 V. Busses	50	6	3
1 Indicating Voltmeter on 2,200 V. Busses	51	6	3
2 Sets of 13,200 V. Lightning Arresters	600	6	36
2 Sets of 13,200 V. Choke Coils	420	6	25
Copper wiring in Station	100	6	6
	8,331	6	500
Station of brick, about 30 feet by 20 feet by 15 feet high	1,500	2	30
Material needed for Power Distribution:			
144 Poles, at $10, erected with cross arms and braces	1,440	8	115
470 Insulators at 25c., erected with pin	118	5	6
7,065 lbs. copper at 20c., erected, weatherproof	1,413	2	28
Incandescent Distribution on basis of 900–16 c.p., connected up at $5.50 per 16 c.p	4,950	6	297
Street Lighting on a basis of 80–32 c.p. 110 V. Tungsten lamps, connected in groups on service transformers, and switched on in groups at dusk, at $12.50 per lamp	1,000	24	240
Interest at 4½ per cent., Sinking Fund at 1.8 per cent			1,181
Administration and Labor			850
Power cost per annum, 225 H.P., at $38.66			8,699
Total Capital cost	18,752		11,946
Estimated Income:			
Street Lighting (charged off) at rate of 5c. per night per 32 c.p., all night, 80-38 c.p.			1,460
Power sold (including water works) at $40.00 for 225 H.P			9,000
Incandescent Income, 150 services, at $18.00			2,700
			13,160

ESTIMATE No. 3.

Prices of 13,200 Volt Power to Elmira.

	Capital Cost.	%	Annual Charges.
Estimated for 225 H.P. over a single circuit:	$		$
11 Miles single circuit, No. 6 wire pole line, at $1,110	12,210	6	733
Measuring instruments in Elmira	900	6	54
Disconnecting Station on poles at Waterloo	200	6	12
	13,310		799
Engineering and Contingencies, 10 per cent.	1,331		80
	14,641		879
Interest during construction, 3 per cent.	439		
	15,080		
Interest at 4 per cent., Sinking Fund at 1.8 per cent. on $15,080			875
Line loss, 8 H.P., at $9.40			75
Operating, at $40 per mile			440
Total Annual Cost to transmit 225 H.P.			2,269

Cost per H.P., $10.08. Total cost of power to Elmira: $24.50 + $10.00 = $34.58. Total cost per H.P. to build, $67.02.

ESTIMATE No. 4.

Cost of Distribution in Elmira

	Capital Cost.	%	Annual Charges.
Material needed in Station:	$		$
1 Incoming Line Panel, 13,200 V., at $600	600	6	36
2 Sets Disconnecting Switches, 13,200 V.	180	6	11
3 100 K.W. 13,200/2,200 V. step-down Transformers	4,200	6	252
3 2,200 V. outgoing fender panels, at $400	1,200	6	72
3 Sets of 2,200 V. Lightning Arresters, at $50	150	6	9
1 Potential Transformer on 2,200 V. busbars	50	6	3
1 Indicating Voltmeter	51	6	3
1 Set of 13,200 V. Lightning Arresters	300	6	18
1 Set of 13,200 Choke Coils	260	6	16
Copper wiring in Station	50	6	3
	7,041	6	423
Station of brick, about 30 feet by 20 feet by 15 feet high	1,500	2	30
Material needed for Power Distribution:			
144 Poles, at $10, erected with cross arms and braces	1,440	8	115
470 Insulators, at 25c. erected	118	5	6
7,065 lbs. of Copper at 20c., erected, weatherproof	1,413	2	28
Incandescent Distribution on basis of 900-16 c.p., connected up at $5.50 per 16 c.p.	4,950	6	297
Street Lighting on a basis of 80-32 c.p., 110 V., Tungsten lamps, connected in groups on service transformers, and switched on in groups at dusk, at $12.50 per lamp	1,000	24	240
	17,462		1,139
Interest at 4½ per cent., Sinking Fund at 1.8 per cent			1,100
Administration and Labor			850
Power cost per annum, 225 H.P., at $33.58			7,781
			10,870

Norwich and Tillsonburg: Applications were received from the towns for price on a supply of power. At Woodstock was the nearest transformer station, estimates were made of the cost of transmitting power to Norwich and Tillsonburg from Woodstock at 13,200 volts. These estimates as printed herewith were sent to these towns.

January 6th, 1909.

ESTIMATES FOR NORWICH AND TILLSONBURG.

A number of comparative estimates have been made for different amounts of power delivered at Norwich and Tillsonburg.

Power is transmitted from Woodstock at 13,200 volts, 25 cycles, and is switched directly from the busbars in the Woodstock transformer station. For ten miles the power is transmitted over a double circuit line, open-air switches being placed on the end of the line, and branches run to Norwich and Tillsonburg. Single circuit lines for 300 horse power and double circuit lines for 400 horse power and over. The power is transformed at Norwich and Tillsonburg to 2,200 volts.

The cost of power at Woodstock busbars taken at $23.50.

SCHEME (A)

Tillsonburg, 300 H.P. Norwich, 300 H.P.

——	Capital Cost.	Annual Charges.	Cost per H.P.
	$	$	$ c.
Tillsonburg	29,466	4,238	37.63
Norwich	23,216	3,392	34.81

SCHEME (B)

Tillsonburg, 300 H.P. Norwich, 300 H.P.

——	Capital Cost.	Annual Charges.	Cost per H.P.
	$	$	$ c.
Tillsonburg	27,970	4,058	37.03
Norwich	28,506	4,122	33.80

SCHEME (C)

Tillsonburg, 300 H.P. Norwich, 500 H.P.

——	Capital Cost.	Annual Charges.	Cost per H.P.
	$	$	$ c
Tillsonburg	26,919	3,940	36.63
Norwich	31,128	4,558	32.62

SCHEME (D)

Tillsonburg, 500 H.P. Norwich, 300 H.P.

——	Capital Cost.	Annual Charges.	Cost per H.P.
	$	$	$ c.
Tillsonburg	40,178	5,755	35.01
Norwich	20,669	3,094	33.81

SCHEME (E)

Tillsonburg, 500 H.P. Norwich, 400 H.P.

——	Capital Cost.	Annual Charges.	Cost per H.P.
	$	$	$ c.
Tillsonburg	38,694	5,588	34.68
Norwich	25,947	3,557	33.14

SCHEME (F)

Tillsonburg, 500 H.P. Norwich, 500 H.P.

——	Capital Cost.	Annual Charges.	Cost per H.P.
	$	$ c.	$ c.
Tillsonburg	37,631	5,474	34.45
Norwich	28,581	4,281	32.07

SCHEME (G)

Tillsonburg only, 300 H.P.

——	Capital Cost.	Annual Charges.	Cost per H.P.
	$	$	$ c.
Tillsonburg	32,416	4,642	38.97

SCHEME (H)

Tillsonburg only, 500 H.P.

——	Capital Cost.	Annual Charges.	Cost per H.P.
	$	$	$ c.
Tillsonburg	46,715	6,524	36.55

The above Capital Cost and Annual Charges are additional costs after leaving Woodstock for transmission and transformation.

For power at 12,000 volts at the town limits instead of power of 2,200 volts, the above cost per horse power can be reduced as follows, for the different amounts of power taken:

For 300 H.P., costs per H.P. reduced by	$3.25
" 400 H.P. " " " "	3.50
" 500 H.P. " " " "	4.00

A power canvass was afterwards made of this district, and, using this as a basis, we estimated that Norwich could safely contract for 150 H. P. and Tillsonburg for 500 H. P. Assuming that contracts for this power are made, and that Springford will take 25 H. P. and New Durham 50 H. P., the cost of power to Norwich would be $36.54 per H. P. per year, and the cost to Tillsonburg, $35.94; Springford, $32.43, and New Durham, $62.56. Omitting New Durham from the line, the cost of power to Norwich would be $39.26 per H. P., the cost to Tillsonburg would be $36.40 and to Springford, $32.89.

Norwich:

An estimate was made as follows, giving the first cost and annual charges of a distribution station.

ESTIMATE OF COST OF DISTRIBUTION STATION IN NORWICH, 150 H.P.

	First Cost.		Annual Cost
	$		$
Cost of station 18 ft. x 20 ft. x 18 ft. high	1,300	2	26
Cost of line entrance	25	5	1
1 set 13,200 V. Lightning Arrester	540	6	32
1 " " Choke Coils	240	6	14
1 " Disconnecting Switches	75	6	5
1 T. P. S. T. hand operated oil switch 13,200 V.	390	6	23
3 50-K.W. 13,200/2,200 V. step-down O.I.S.C. transformers	1,860	6	112
1 hand operated sw. bd.,type 2,200 V.,T.P. S.T. oil switch	175	6	11
3 2,200 Volt Lightning Arresters	75	6	5
1 Switchboard Panel with Indicating Instruments	400	6	24
	5,080	.....	253
Engineering and contingencies, 10%	508	.....	25
	5,588	.....	273
Interest during construction, 3%	168	6	10
	$5,756	.....	288
Interest at 5% and Sinking Fund at 1% on $5,756			391
Labor and attention at $25 per month			300
Lost power (5% of 150 H.P. at $23)			173
Cost of distribution station per year			1,152

Cost per H.P. per year—$7.68 to be added to the cost of power at Norwich.

North Toronto: Detailed estimates were made on street lighting as follows, and a map prepared showing the locations of the proposed lamps. These estimates were sent to North Toronto.

ESTIMATE No. 1.

First cost and annual charges on an underground line from the high level pumping station to the corner of St. Clair Ave. and Yonge Street.

	First cost.		Annual Cost.
	$		$
6,000 ft. cable-duct installed at $1.20 per lineal foot (4 duct)	7,200	2	144
12 manholes at $160 each	1,920	5	96
6,000 ft. No. 4 H. & S. 13,200 V., 3-phase cable at 50c	3,000	6	180
3 Lightning Arresters at Yonge and St. Clair	350	6	21
	13,470		441
Engineering and contingencies, 10%	1,347		44
	13,717		485
Interest during construction, 3%	412		
	14,129		
Interest and Sinking Fund at 6.3% on $14,129			390
Total annual charges			1,375

ESTIMATE No. 2.

First cost and annual charges on the line from Yonge and St. Clair to the Pumping Station on Sherwood Ave. (13,200 volts).

The poles already on Yonge Street can be used, and the poles on Sherwood Ave. are included in the distribution estimates, so that there will be needed for this:—

	First Cost.	%	Annual Charges.
	$		$
Extra cross arms, pins, insulators, etc., on poles already covered on Yonge street and Sherwood avenue, 163 poles at $3 per pole..	489	6	29
40,950 ft. No. 4 copper, one circuit, at 126 lbs. per 1,000 ft. at 20c. per lb. erected	1,032	2	21
Line hardware and guys	50	6	3
1 Incoming Line Panel 13,200 V	1,200	6	72
1 Set 13,200 V. Arresters with Coke coils	680	6	41
1 13,200 V. Line Entrance	50	6	3
	3,501	.....	169
Engineering and contingencies, 10%	350	.....	17
	3,851	.....	186
Interest during construction, 3%	116	.....	.....
	3,967	.....	.....
Note—If the station is located at Montgomery and Yonge there would be the following reductions:—			
19,200 ft. of wire	484	2	10
Extra cross arm, etc, 40 poles at $3	120	6	7
	604	.....	17
Engineering and Contingencies, 10 per cent	60	.....	2
	664	.....	19
Interest during Construction, 3 per cent	20	.....	.....
	684	.....	.....
We will continue with the assumption that the station is to be at the Pumping Plant.			
Interest and Sinking Fund, 6.3 per cent. on $3,967	.....	.....	250
Total Annual Charges	.....	.....	436

ESTIMATE NO. 3.

First cost and annual charges on the station and distributing system.

	First Cost.	%	Annual Charges.
	$		$
Cost of addition to the Pumping Station	1,000	1	10
921 Poles, complete, erected with bolts, nuts, crossarms, etc., at $11, erected	10,131	6	608
1,517 Insulators, with Pins, erected, at 25c	379	6	23
144,450 feet No. 6 copper wire, bare, at 80c. per 1,000 feet, and 20c. per lb., erected	2,311	2	46
Line Hardware, etc	100	6	6
2,100 light capacity, 13,200 V., primary; 4 ampere rectifier equipments, complete, with all details, erected complete, at $6,200 each	12,400	6	744
180 Metallic flame arc lamps erected, complete, with cut-outs at $47.50	8,550	6	513
Wiring and busbars in station	100	6	6
	34,971	.....	1,956
Engineering and Contingencies, 10 per cent	3,497	.....	196
	38,468	.....	2,152
Interest and Sinking Fund, at 6.8 per cent. on $39,622	1,164	.....	.....
	39,622	.....	.....
Interest and Sinking Fund at 6.3 per cent. on $39,622	.....	.....	2,496
	.....	.....	4,648

ESTIMATE NO. 4.

Annual cost of operating 175 Lamps.

Estimate No. 1—Underground Line	$1,375
" " 2—Overhead Line	436
" " 3—Station Equipment and Distribution System	4,648
Operation of Station—Labor	900
Cost of Power—104 H.P., at $25	2,600
Cost of Lost Power—5 H.P., at $25	125
Renewals, at $5.75 lamp	1,006
Total Operating Cost	$11,090

Annual cost per lamp, $63.37.
Capital cost per lamp, $329.82.
Interest is figured at 5 per cent., and Sinking Fund Charge at 1.8 per cent. (retiring in 39 years), making a total of 6.3 per cent.

Dundas: This town asked for a price on power and the cost of distribution, etc. We also gave them an engineering report on the present franchise of the Cataract Power Co. We have given them information to use in passing a by-law authorizing the Council to contract for power.

Paris: A request was made for estimate and for the visit of an engineer to the municipality to ascertain the power conditions.

Burford Village: Application was made through resolution of their Council for a price of not less than 50 and not more than 100 horse power delivered at the village.

Port Stanley: Application was made for a price of power delivered to the municipalities. The estimates will be made up and submitted immediately.

Out of the municipalities that have contracted for power, Toronto, Guelph, Berlin, Woodstock and London, all have their own engineering departments who are planning the work and apparatus for their system. We have given help to all the municipalities on many questions, as follows:—

July 28th,1909.

BERLIN.

ESTIMATE OF OVERHEAD LINE FROM COMMISSION'S STATION TO BERLIN STATION. 4,600 FEET—13,200 VOLTS.

60 Poles, 40 feet high, complete with cross arms for double circuit, three-phase line, and also bolts, nuts and braces, at $15 each (octagon shape, painted), erected ...	$900
378 Insulators, complete, with pins, at 35c., erected	132
29,000 feet No. 0. B. & S. bare copper wire, No. 338, at 30c. per lb.	1,960
Extra line hardware, etc.....	200
Two sets 13,200 volt electrolytic lightning arresters, at $336.....	672
Two sets 13,200 volt choke coils, $120	240
	$4,104
Engineering and Contingencies, 10 per cent.....	410
	$4,514
Interest during Construction, 3 per cent.....	135
	$4,649

ESTIMATE OF UNDERGROUND LINE FOR COMMISSION'S STATION TO BERLIN SUB-STATION.

4,600 feet of 4 duct conduit at 75c. per duct foot	$3,450
Ten manholes, at $100 each	1,000
9,200 feet No. 9. B. & S. lead covered, 3-phase cable at 70c. per foot	6,440
	$10,890
Engineering and Contingencies, 10 per cent.....	1,089
	$11,979
Interest during Construction, 3 per cent.....	359
	$12,338

Toronto: Considerable work has been done in surveying rights-of-way to the Toronto station, and the plans and specifications drawn up by the City Engineering Department, for station equipment, conduits, etc., and the methods of charge for power and lighting have been considered and our advice given.

Guelph: An estimate of the cost of power to Guelph under the present contract with varied demands for power was made. The requirements of the Guelph Agricultural College were investigated and a report made.

Berlin: Comparative estimates of the cost of overhead and underground lines from the Commission station to the municipal station have been made for their use.

Woodstock: Some work has been done in arranging the Commission's station and the city station for operation as a unit.

London: Several estimates of the cost of power to the London Street Railway Co., under different conditions, were made for the city.

An estimate of the cost at the lines between the Commission's station and the city station were made on the basis of all overhead construction composed with a line partly overhead and partly underground. An estimate was also made of the cost of the transmission lines between the Commission's station and the South-Western Traction Company's power house, Asylum and the city's east end stations.

Hamilton: Estimates were made of the cost of power to Hamilton on the basis of the following demands:

Demand.	Total cost per h.p.	Sinking Fund charge.
1,000 h.p.	$17.92	$1.52
1,500 h.p.	17.50	1.39
2,000 h.p.	16.65	1.26
2,500 h.p.	16.13	1.19
3,000 h.p.	15.79	1.14
4,000 h.p.	15.55	1.13

Some of the municipalities have not been in a position to proceed with plans, owing to various reasons, and those towns have had help in various ways.

Ingersoll has been visited many times in an endeavor to help them in their consideration of local questions. Estimates have been made of the cost of power distribution, and these are now being used as the basis of a money by-law which will be voted on early in January. The situation in Ingersoll is peculiar and we have made many efforts to solve it.

Galt has been visited many times and help given them in their efforts to solve their local difficulties. We recommended an engineer to give them an estimate of the value of the present plant. This has been made, and negotiations to purchase the local plant are now in progress.

New Hamburg has decided to secure by purchase the plant now operating in that town, if a favorable price can be made, and to that end has asked us to recommend an engineer to give them a valuation. This engineer is now engaged on this work. Several visits have been made to the town to give them information and aid.

The following municipalities have requested the Engineering Department of the Commission to act as consulting engineers:

Waterloo was visited many times and data secured for making up a proposed distribution system. Arrangements have been made to take over the local plant by purchase. The Council has been granted the services of the Engineering Department of the Commission to act as their consulting engineers, and a proposed station, and the apparatus to be used therein, has been laid out for them. Applications for tenders for this apparatus are now being drawn up. The station is being built.

Hespeler: Estimates have been made for this town on power distribution and station apparatus cost as follows. Hespeler has been granted the services of the Engineering Department to act as their consulting engineers, and the specifications and form of tender for their apparatus are now being drawn up.

Distribution Estimates for Hespeler.

Power will be delivered by the Hydro-Electric Power Commission to Hespeler at the Hespeler municipal station over a single three-phase line, using on Main Street the poles to be erected by the municipality.

The power for the Forbes Woollen Mills will be tapped off from this main line where it passes the mills.

The 6,600 volt line will run on the north side of Main Street and will cut across the river to the municipal station.

We have made two estimates as follows:—

Estimate No. 1.—Cost of an extension to the present building, and cost of station apparatus.

Estimate No. 2.—Cost to distribute power, including feeder panel, etc., and poles on Main Street.

New poles have been estimated on in all cases, although some of the present poles might be used to carry the power distribution wires.

The synchronous motor figured on in Estimate No. 1 operates from 6,600 volt busbars.

HESPELER.

ESTIMATE NO. 1.

	Capital Cost.	%	Annual Charges.
	$		$
Extension to present building	500	2	10
1 Incoming 6,600 V. Line Panel	780	6	47
1 Set Disconnecting Switches	45	6	3
1 Set 6,600 V. Lightning Arresters	265	6	16
1 Set 6,600 V. Choke Coils	150	6	9
2 Bus Potential Transformers	302	6	18
1 Voltmeter	50	6	3
6,600 Volt Busbars and wiring	100	6	6
1 6,600 V. 100 K. V. A. Synchronous motor to drive present generator	3,800	6	228
Station Wiring and Labor	200	6	12
	6,192		352
Engineering and Contingencies, 10 per cent	619		35
	6,811		387
Interest during Construction, 3 per cent	204		
	7,015		

HESPELER.

ESTIMATE NO. 2.

	Capital Cost.	%	Annual Charges.
	$		$
71 poles completely equipped with cross arms, etc., at $11.00, erected	781	8	63
100 Insulators, with pins erected, at 25c. each	25	6	2
7,212 feet No. 6 copper, bare, at 100 lbs. per thousand feet, at 20c. erected	144	2	3
Guys, line hardware, etc.	25	6	2
1 6,600 V. Power Feeder Panel	600	6	36
1 Set Lightning Arresters, at 6,600 V., complete with choke coils	415	6	25
	1,990		131
Engineering and Contingencies, 10 per cent	199		13
	2,189		144
Interest during construction, 3 per cent	66		
	2,255		

SUMMARY.

Estimate No. 1	$7,015	$337
Estimate No. 2	2,255	144
	$9,270	$531
Interest, 5 per cent.; Sinking Fund, 1.8 per cent		630
		$1,161

Preston: An estimate was made of the cost of station apparatus and line material as follows:—

Estimate of material and apparatus required to run a 2,200 volt power line from city station to power users:

Assuming that a new 2,200 volt, 25 cycle three-phase power circuit is to be run from the power house to the power users listed, the following material and apparatus would be needed. The main line runs from the station south-east on King Street to Union Street, with a branch on Eagle Street to the mills and the car company, and a second branch on Guelph Street to Ballantyne's. We have estimated on all new poles and step-down transformers for all power users, and reductions can be made for such of the present poles as can be used for the power users who can use 2,200 volt power and therefore would not need transformers.

	Capital Cost.		Annual Charges.
	$		$
Conductors, 7,398 lbs. at 20c. D.B. Weatherproof	1,480	2	30
96 poles at $11, erected with cross arms	1,056	2	24
318 Insulators at 25c., erected with pin	20	6	5
Transformers	4,101	8	328
11 Sets of Lightning Arresters at $25	275	6	17
11 " " Fuses at $12	132	6	8
Extra line hardware, etc.	100	6	6
Engineering and contingencies, 10%	722	.....	48
	7,946	.....	526
Interest during construction, 3%	238	.....	.....
	8,184	.....	.....
Interest, 5%; Sinking Fund, 1.8%	.....	.....	557
	.....	.....	1,083

Estimate of Apparatus and Material in the City Station.

	Capital. Cost.	%	Annual Charges.
	$		$
1 Incoming line panel	780	6	47
2 6,600 V. Bus Potential Transformers	150	6	9
1 Voltmeter on busbars	50	6	3
1 Set Disconnecting Switches	90	6	5
Busbars and wiring	100	6	6
Line Entrance	50	6	3
1 Power Feeder Panel, 2,200 V	400	6	24
1 Set 2,200 V. Lightning Arresters	100	6	6
1 Panel for the control of Magnetite Equipment	400	6	24
1 2,200 V. Magnetite Equipment for 50 Lights	2,000	6	120
1 Synchronous Motor Feeder Panel, at 6,600 V.	600	6	36
1 6,600 V. Synchronous motor for driving present 60 cycle generator	2,800	6	168
1 Feeder Panel (2,200 V.) for motor or pump	400	6	24
1 Transformer Panel, 6,600 V	600	6	36
1 Bank of 3-100 K.W. 6,600/2,200 V. Transformers	3,500	6	210
Engineering and Contingencies, 10%	1,202	6	72
	13,222		793
Interest during Construction	397	6	24
	13,619		817
Interest, 5%, and Sinking Fund, 1.8%			926
			1,743

The Engineering Department is now acting as consulting engineers for the town of Preston by the consent of the Commission and at their request. Tenders for the electrical apparatus have been secured and orders should be placed very soon.

Stratford: Data have been gathered and estimates made upon the power distribution system and the apparatus needed in a sub-station. Efforts have been made to buy up the local plant and an arbitration board has been appointed to determine a valuation. The situation has called for considerable of our time and attention. We are now by the request of the Council acting as their consulting engineers.

STRATFORD.

Station Equipment.

	First Cost.	%	Annual Charges.
	$		$
4 Sets 13,200 V. Disconnecting Switches, at $50	200	6	12
2 " " Lightning Arresters, at $350	700		42
2 " " Choke Coils, at $125	250	6	15
2 Incoming Line Panels, at $1,000	2,000	6	120
2 13,200/110 V. Potential Transformers, at $170	340	6	21
2 150 Volt Voltmeters, at $45	90	6	5
3 50 Light Magnetite Equipments, 13,200 V., complete, with panels, etc	7,000	8	560
1 Transformer panel for 13,200 V. side	600	6	36
3 100 K.W. Transformers 13,200/2,200 V. at $1,000	3,000	6	180
1 Synchronous motor panel at 13,200 V.	1,000	6	60
1 225 K.W. 13,200 V. Synchronous Motor	6,000	6	360
2 2,200 V. Feeder Panels, at $500	1,000	6	60
1 2,200/110 V. Potential Transformer	60	6	4
Labor in Station	200	6	12
New Machine Foundations, etc	500	1	5
Busbar wiring, etc	250	6	15
	23,190		1,507
Engineering and Contingencies, 10 per cent.	2,319		151
	25,509		1,658
Interest during Construction, 3 per cent	765		
	26,274		

STRATFORD.

Line Equipment.

	First Cost.	%	Annual Cost.
	$		$
381 Poles, at $12 each, erected with cross arms	4,572	6	274
1,201 Insulators, erected with pins, at 35c	421	8	34
9,985 lbs. of Copper Conductor, bare, erected, at 20c. per lb.	1,997	2	40
Extra line hardware	200	6	12
100 Magnetite Arc Lamps, 4 amps., complete, with cut outs and hangers, at $40	4,000	6	240
100 Series Tungsten Lamps, at $2.25, plus $1.25 installation	350		
100 Cut Outs for Tungsten units, at $1.40, plus 35c. installation	175	6	11
100 Brackets and Sockets for same, at $10	1,000	6	60
	12,715		671
Engineering and Contingencies, 10 per cent.	1,272		67
	13,987		738
Interest during Construction	420		
	14,407		
Lost Power—10 H.P., at $9.40			94
			832

Summary.

	First Cost.	%	Annual Cost.
	$		$
Station Equipment	26,274		1,658
Line Equipment	14,407		332
New Incandescent Services	4,000	6	240
Remodelling Station	2,000	2	40
	46,681		2,670
Interest and Sinking Fund, 6.8 per cent			3,174
			5,344

St. Mary's: Many questions have arisen calling for our services to make matters clear to the Fire and Light Committee and to the Council. While the Engineer and the Committee are drawing up the plans for the local distribution system, and for adapting the municipal plant for Niagara power, we have been asked to serve as consulting engineers on many questions in dispute.

St. Thomas: As consulting engineers for St. Thomas, we have laid out a complete system for their various services. This has been accepted by them and we are drawing up specifications and applications for tenders. Considerable preliminary work has been done and plans have been made to start work.

Meetings of Municipal Engineers.

At our advice and request the electrical engineers or superintendents of the local plants of the various municipalities who have contracted for power, held a meeting in Toronto on September 29th and 30th, to consider engineering questions of general interest to the municipalities. This meeting was a pronounced success and resulted in a decision to hold these meetings as frequently as possible, especially during the time when plans are being made and specifications drawn up. Three of these meetings have been held, each lasting two days, and Mr. Ross, our Consulting Engineer, has acted as Chairman, and a representative from the Engineering Department has acted as Secretary. After each meeting full minutes of same have been sent to each municipality under contract. The Engineering Department has investigated many subjects for the Municipal Engineers and has written reports on them calling for considerable time and attention.

Copies of the minutes and of these reports follow:—

Minutes of the Joint Meeting of Municipal Engineers and the Hydro-Electric Power Commission, held on Wednesday and Thursday, September 29th and 30th, 1909.

In accordance with the invitation of the Commission, a meeting of the engineers of the following municipalities and the Commission was held on Wednesday, Sept. 29th, 1909, at the offices of the Commission, Continental Life Building, being afterwards adjourned to Committee Room No. 1 of the City Hall.

The meeting was called to order at 2 p.m. and the municipalities were represented as follows:—

Toronto.....K. L. Aitken.
London.....E. I. Sifton.
St. Thomas.....Jas. A. Bell, George Gill.
oodstock.....J. S. Archibald.

St. Mary's .....L. H. Reesor, W. R. Reynolds.
Stratford .....Mayor Dingman, Mr. Barnett and R. H. Myers.
Guelph .....E. Richards, J. J. Heeg.
Berlin .....E. J. Philip, Mayor Hahn.
Hespeler.....L. E. Weaver.
Waterloo .....Mayor Weidenhammer.

The engineering interests of Waterloo were looked after by Mr. E. J. Philip, of Berlin, and the interests of Preston, Galt, New Hamburg and Ingersoll by the engineers of the Commission, as these municipalities were not represented.

The Chairman of the Commission, Hon. Adam Beck, welcomed the delegates and gave a short address outlining the reasons for calling the meeting, as summarized in the invitation, and giving a report of the progress of construction work.

After the address a general discussion took place on questions of general interest, the opportunity being used to take up questions of policy regarding existing franchises and regarding the sale of power to interurban railways by the Commission.

Mr. Ross, Consulting Engineer, took the chair and outlined the discussion to be followed and gave a general resume of the questions of interest to be brought up.

The question of voltages was then taken up and a very animated, interesting and careful discussion took place. The main questions discussed were the advisability of distributing overhead at 13,200 volts, the sale of 13,200 volt power, the best voltage for motor power, the proper voltage for incandescent service, and the general questions of power and light distribution.

After lengthy consideration the following resolution was moved by Mr. Sifton, seconded by Mr. Philip: "Whereas the consensus of opinion is that 550 volt for power, 110 and 220 volt for lighting with 2,200 volt for intermediate voltage, where needed, be considered as standard by the engineers; be it resolved that each representative study his local conditions in this connection in order that the difficulties to be surmounted, if any, may be considered at the next meeting." Carried.

The question of frequencies was then discussed and the delegates reported on the proposed action in each municipality, to adapt their present services to 25 cycle power. It was then found that the same general practice was to be followed in each municipality, that where the present service, whether 60 cycles or direct current, is satisfactory it should be maintained driving the generators by a 25 cycle motor, but that all new work, overloads, if any, and the outskirts be served by 25 cycle power for all purposes, gradually reducing the load on the generators by changing over to 25 cycles whenever a transformer is to be replaced, a motor is outgrown or worn out, etc. The ultimate outcome of this gradual elimination of all but 25 cycle services was generally felt to be one for which a solution was not necessary now, and it was therefore moved by Mr. Richards, seconded by Mr. Archibald. "That the meeting felt that practice should tend to 25 cycle for all purposes." Carried.

The subject of Station Transformers was then discussed and after some general talk a resolution was moved by Mr. Richards, seconded by Mr. Archibald. "That the Commission be asked to obtain prices on single-phase and three-phase transformers, and study the question of recommending the use of either for the requirements of the municipalities." Carried.

There was an interesting discussion regarding the use of taps on step-down transformers, which led naturally to the subject of feeder regulators. While it seemed to be the consensus of opinion that feeder regulators would have to be in-

installed after the system was working and its requirements determined, it was decided to postpone further discussion of this subject until the next meeting. Meanwhile the Commission was to ask the Engineers of the municipalities to consider the question—What taps, if any, do you consider advisable on step-down transformers? What proportions should these taps be, 2½ per cent., 3⅓ per cent., or 5 per cent.? Also should these taps be on the high tension side, low tension side, or both?

The meeting was adjourned at 6 p.m., to meet again next morning at 9 o'clock.

The meeting was promptly called to order at 9 a.m. on the 30th, Mr. Ross presiding.

The meeting was opened by Mr. Sothman giving a talk on the lamps in use abroad. It was learned that tantalum lamps were most satisfactory on 25 cycles, being very substantial, with long life, and were economical in the use of power. The tantalum lamp made by the Siemens, Halske Company could be bought in England and laid down in Canada for about 40 cents.

The question of free renewals of lamps was then begun, and it was found that it is not the general practice. There was no decision on this question though it seemed to be the idea as expressed by Mr. Ross that it was the practice to be recommended. The discussion naturally led up to the question of rates and methods of charging, and after a long discussion in which all the delegates joined, various combined or differential rates being considered, it was conceded that a differential rate was necessary. It was then moved by Mr. Sifton, seconded by Mr. Archibald, "That the municipalities furnish all information available relative to private and commercial lighting in each municipality with the object of enabling a method of charging to be recommended which would be found equitable to all classes, this to include the question of free lamp renewals and meter rents." Carried.

The next subject was street lighting, and many types and methods were discussed. The subject, however, was too large for consideration with data at hand, and the Commission was requested to get all the data regarding the first cost, life, maintenance, energy, cost, etc., of the various systems adapted to 25 cycle power, and report at the next meeting.

At this point Mr. Sothman gave some general relative costs of single-phase and three-phase transformers, showing that three-phase transformers were about 25 per cent. cheaper than the equivalent capacity in single-phase transformers.

The use of synchronous motors on high voltages showed a great difference of opinion, and after some discussion the request was made that the Commission secure comparative costs on the same size motors at the different voltages with further data on the cost of the increased size in transformers for the low voltage motors.

During the talk on lightning arresters which followed, Mr. Sothman and Chief Myers told of conditions in the power house and sub-stations of the 100,000 volt plant at Muskegon. It being conceded that no general rule can be laid down for the use of arresters, it was decided that since local conditions rule, each engineer was to present the conditions applying in any case which he wished to have solved for consideration at the next meeting.

The subject of bulking orders on supplies for line and service work was discussed, and it was conceded that it would be advantageous in many cases to do so. Therefore at the next meeting or at any meeting following, each engineer was to give a list of the material he wished to purchase, so as to buy in large quantities.

Some standard system of accounting being considered advisable, the Commission was requested to report on the system best adapted for use. The system proposed by the N.E.L.A., New York Public Service Commission and the Massachusetts Railway Board, as well as the system used by the Ontario Railway and Municipal Board, are to be considered at the next meeting.

The frequency of these meetings was considered and it was decided that during the next few months meetings should be held often, and at the different municipalities in order to study the local conditions. It was then moved by Mr. Richards, seconded by Mr. Bell, "That the next meeting be held in Toronto on Tuesday, the 12th of October, at 2 p.m."

The meeting was then adjourned.

Opinion of the Engineering Department of the Commission on the Subject of a Standard Voltage for Power.

By mutual consent, we may say, this question has resolved itself into a discussion between the advocates of 440 and 550 volts. The former claim the advantage of being able to use the same transformers for light and power service. The advocate of 550 volts claims the prevailing practice, a greater radius of distribution with the same loss, and a lower copper cost.

It seems to us that the question resolves itself into other questions which are up for discussion, and the solution of this question depends on the solution of others. If we are right in saying that the consensus of opinion at the last meeting favored the distribution ultimately of all power at 13,200 volts, the advocate of the 440 volt secondary has lost his argument, for then the transformers would have 13,200 volt primaries, which the lighting transformers would not have. And, too, the power transformers would be concentrated, and therefore much larger than the lighting transformers.

Again, if three-phase transformers for power are adopted, the 440 volt man has lost his argument.

We would advocate the distribution of power at 13,200 volts (6,600 volts for Galt, Preston and Hespeler), the use of three-phase 13,200/575 volt transformers for power, the use of 2,200 / 220 / 110 volt single-phase transformers for lighting.

Where a small power user wishes power from the lighting mains supplying him with 220 single or three-phase power using standard lighting transformers. Where larger power user wishes power and you cannot economically or advisedly reach him with your 13,200 volt circuits, sell 2,200 volt power and have him furnish not only motor but transformers, recommending the use of 2,200 / 575 / 115 volt transformers.

If these standards were adopted London would be obliged to distribute at 13,200 volts or to purchase a lot of special transformers. Woodstock would be obliged to sell the 440/220 volt secondary 25 cycle transformers now in use and buy others, losing the benefit of the foresight shown during the last two years when buying transformers. The other municipalities would be able to fall in line.

In answer to these two arguments we urge the use of 13,200 volt circuits in London. With the London electric wires, the telephone, telegraph, and a few more, the streets are crowded without new lines and they should *all* go underground. But until the competitive wires go underground the city should not be forced to bear the extra expense. In the meanwhile arrangements can undoubtedly be made to run high voltage lines overhead. We believe this question should be given serious consideration.

In Woodstock's case we believe that the time when the motors are changed from 60 to 25 cycle is the time to change the transformers and line voltage, if any change is ever to be made. We are told that the power is to be 13,200 volt construction with 2,200 volt power until the load warrants 13,200 volt service. If the line is ever to be changed to 13,200 volts now is the time to do it, when the number of transformers is low and the motors have to be changed to 25 cycles, and when the transformers now in use can be sold to other municipalities as lighting transformers.

We have secured comparative costs on service transformers with different secondaries and find that a 10 kilowatt transformer with 2,200 volt primary and 575 volt secondary cost the same as 2,200 / 110 220 volt transformers, while a 2,200 / 110 220 / 440 volt transformer would cost about 15 per cent. more. Three single-phase 10 kilowatt transformers will cost about 17 per cent. more than a 30 kilowatt three-phase at 2,200 volt primary, 575 volt secondary.

Toronto, October 11th, 1909.

THREE-PHASE VERSUS SINGLE-PHASE TRANSFORMERS. OPINION OF ENGINEERING DEPARTMENT OF THE HYDRO-ELECTRIC POWER COMMISSION.

The results of our investigations are as follows:—

Both Westinghouse and G.E. Company will guarantee either.

G.E. say that if one leg breaks down that leg can be short-circuited, using two other legs, thereby overcoming advantage of single-phase transformers.

Westinghouse say that if reserve is desired two three-phase Station Transformers will cost only 10 per cent. more than four single-phase transformers. One three-phase transformer can be held as a reserve for two or more stations. Galt, Preston, Hespeler, Berlin, and Waterloo, all on the G., P. & H. Railway, could have one common three-phase reserve mounted on a flat to be hauled to any one of the stations. London and St. Thomas could hold reserve in the same way.

We have quotations from the A.B.C. Company on single and three-phase transformers for services, 2,200/575 volts, and in comparing them we find that 3-5 kilowatt cost 9 per cent. more than one 15 kilowatt three-phase. Three 10 kilowatt single-phase cost about 15 per cent. more than one 30 kilowatt three-phase. Three 50 kilowatt cost about 35 per cent. more than one 150 kilowatt three-phase. There is a great money saving in the larger sizes, and in the smaller sizes the advantage of having only one transformer to hang instead of three is worth considering, in addition to the money saving.

Our opinion is to make all station transformers three-phase, with two taps on the primary side, and all power service transformers three-phase 13,200 volt primary, 575 volt secondary, with two taps on the primary side, and all lighting service transformers to be single-phase 2,200 / 220 / 110 volt.

Toronto, October 11th, 1909.

MINUTES OF THE MEETINGS OF MUNICIPAL ENGINEERS, HELD ON TUESDAY AND WEDNESDAY, OCTOBER 12TH AND 13TH, 1909.

In accordance with the resolution passed at the first meeting, held on September 29th, the engineers of the municipalities met on October 12th in Committee Room No. 1 of the Toronto City Hall.

The meeting was called to order at 2 p. m., and the municipalities were represented as follows:—

London	E. I. Sifton, Ald. Stewart.
Woodstock	C. Archibald.
St. Mary's	L. H. Reesor, W. R.Reynolds.
Stratford	R. H. Myers, Mr. Barnett.
Guelph	J. J. Heeg, R. Richards.
Berlin	E. J. Philip.
Hespeler	L. E. Weaver.
Toronto	E. Richards.
Galt	E. B. Merrill.

The interests of Waterloo were looked after by Mr. Philip, while St. Thomas, Preston, Ingersoll and New Hamburg were represented by the Engineers of the Commission.

Mr. Ross, the Consulting Engineer of the Commission, was asked to take the chair, and the meeting at once began the consideration of engineering questions. The reading of the minutes of the last meeting was dispensed with, as a full report of the previous meeting had been mailed to each municipality.

Secondary Voltages.

The first subject was that of secondary voltages for light and power. Final decision on this subject had been postponed from the former meeting to allow each engineer to study local conditions to determine whether he could comply with the present standard. A report on the subject by the Engineering Department of the Commission, which may be summarized as follows:—We would advocate the distribution of power at 13,200 volts (6,600 volts for Galt, Preston and Hespeler), the use of three-phase 13,200/575 volt transformers for power, and the use of 2,200 220 / 110 volt single-phase transformers for lighting. Where a small power user wishes power from the lighting mains, supply him with 220 volt single-phase power, using standard lighting transformers. Where a larger power user wishes power and you cannot economically or advisedly reach him with your 13,200 volt circuits, sell 2,200 volt power and have him furnish not only motor power but transformers, recommending the use of 2,200 / 575 volt transformers.

During the discussion it was found that London could use 550 volt secondary, Woodstock could do so if the other municipalities took some of their present 25 cycle 2,200 / 220 / 110 volt transformers off their hands. It was also decided that 550 volt power could be made safe for all factory work.

The report was finally adopted, with the following amendments:—

It was considered inadvisable to run higher than a one horse power single-phase motor on the lighting transformers.

It was considered inadvisable to run higher than a ten horse power motor on the 2,200 volt lighting mains if the motor is to be on during lighting hours.

No limit in size is necessary if the motor is to operate only during restricted hours.

Frequency.

The decision of the last meeting on this subject was confirmed, and it was decided that practice should tend toward 25 cycle power for all purposes.

Single vs. Three-Phase Transformers.

This decision, also postponed from last meeting for further data, was opened by reading the report of the Engineering Department. Their discussion summarized was, all station transformers should be three-phase with two taps on the primary side, all power service transformers three-phase 13,200 volts primary, 575

volts secondary, with two taps on the primary side, and all lighting service transformers to be single-phase 2,200 / 220 / 110 volts. (Percentage of taps under subsequent heading.)

During the discussion the question of weights and sizes as well as prices were considered, and it being found necessary to secure further data the subject was postponed to the following day.

Taps on Transformers.

This discussion was opened by reading the opinion of the Engineering Department, which summarized was:—We advise the use of two taps on the primary side only, arranged for normal voltage, 2½ per cent., 5 per cent. and 7½ per cent. below.

As these taps were for boosting only, the question of lowering taps was discussed and dismissed as unnecessary when Mr. Sothman advised that the normal voltage sent out from the Commission stations would always be as near 13,200 volts as the taps on their 110/000/132 volt transformers would allow. It was then decided that on the understanding that the Commisison will furnish 13,200 volt power at their stations, that their recommendations regarding transformer taps be accepted, to apply to both station and 13,200 volt power service transformers.

It was also decided that all 13,200 volt transformers be specified to have two coils so that they may be standard with the transformers for the 6,600 volt circuits.

Feeder Regulators.

This subject was discussed for some time, advocates for and against the desirability of installing them from the start being strong in their opinions, and it was finally decided that the meeting should recommend that feeder regulators be installed on all lighting feeders but not for the power feeders, and if not installed at present that all arrangements be made for future use.

High vs. Low Voltage Synchronous Motors.

The Engineering Department reported that on the small sizes which would be used in most of the municipalities the cost of the high voltage motor would be more than the cost of a 2,200 volt motor with the cost of the increased size of transformers added. On the large sizes the high voltage motors would be cheaper. As Mr. Sothman had expressed a wish to discuss this question the subject was postponed.

The meeting then adjourned to meet again at 8 p.m.

Mr. Ross called the meeting to order at 8 p.m., the same delegates being present, except Mr. Weaver, of Hespeler.

Single vs. Three-Phase Transformers.

Mr. Reynolds and Mr. Philip during the intermission had secured some data from a publication on the comparative weights of these transformers, which showed that in small sizes the weight of a three-phase transformer (without oil) was greater than three single-phase transformers, while the reverse was true if the weights of the oil were added. This caused general discussion, as it was contrary to the general belief, and it was finally postponed until the next day, when it was hoped to have greater data to work on.

After some general talk on various subjects the question of street lighting was begun.

Street Lighting.

This subject was opened by reading the report of Engineering Department. Summarized this report reads:—The art of street lighting is in a transitory stage, due to the growing belief in small units closely spaced. The time since last meeting was too short to allow proper report being made up. Suggested that a committee be appointed to make up a report and to invite experts from the manufacturing companies to offer recommendations at the next meeting.

A very interesting discussion resulted, which showed that the consensus of opinion favored incandescent lamps properly spaced, but the method of wiring and control was not determined. Finally the Engineering Department was asked to write the City Engineering Department of Boston for a copy of the report made by them covering the experiments and tests they conducted previous to accepting Magnetite lamps as their standard.

It was also decided to approve the report of the Engineering Department and appoint the committee suggested, leaving to the committee the arrangements for the trip, but requesting the report to be made as soon as possible.

High vs. Voltage Synchronous Motors.

As Mr. Sothman was able to attend this session this subject was again brought up for final discussion, and it was finally decided that owing to the small sizes of motors needed, the fairly temporary use for these motors, the present state of the art of designing high voltage synchronous motors, and considering that for small sizes the low voltage sets are cheaper, be it resolved that the meeting recommend the use of the lower voltage units.

During this discussion the question of pump motors for London was taken up, and it was decided that synchronous motors should be used, and if separate power and light circuits are used from the Commission's station to the city station, the motors should be on the power circuit.

The meeting then adjourned to meet again next morning at 9 o'clock.

Mr. Ross called the meeting to order at 9.10 a.m., the same delegates being present, with the exception of Alderman Stewart, of London.

13,200 *Volt Insulators.*

Several samples of insulators were presented, and after considerable discussion the Ohio Brass Company's type No. 10044 was approved. An estimating price of 19 cents each had been given on these. The delegates gave their demands as follows:—Berlin 1,000; Guelph 1,000; Woodstock 100; St. Mary's 350; and London 3,500. The number needed by Stratford, St. Thomas and Preston would be secured. It was then resolved that the Commission secure quotations on 3,000, 7,500 and 13,000, f.o.b. some central point.

Under the same heading discussions were held on Cross Arms, Steel vs. Wood Pins, and Braces and Bolts.

Cross Arms.

Were considered to be too special to bulk orders, each municipality having special requirements as to length and spacing, but it was decided cross arms should be long-leaf yellow pine and painted with two coats of good paint. Treated cross arms not considered necessary.

Steel vs. Wood Pins.

This was settled in favor of a good wood pin. Mr. Sothman preferred an all-steel pin and asked to be placed on record. Mr. Ross voiced the sentiments of the other representatives by deciding on wood pins for any voltage below 20,000 volts.

Braces and Bolts.

A Commission was asked to secure tenders on standard braces and through bolts.

Auditing.

Under this heading the Engineering Department presented copies of accounting systems and reports from the Public Service Commission of New York State, the Railroad Commission of Wisconsin, The Gas and Electric Light Commission of Massachusetts, and the Ontario Railway and Municipal Board.

These were considered, and then it was resolved that the towns authorize their auditors to meet and draw up a system of accounting to be submitted to a joint meeting as soon as possible.

Rates For Incandescent Lighting.

This discussion was opened by the consideration of lamp renewals. Berlin, Guelph and Woodstock furnish free renewals. It was considered advisable to furnish free renewals, but rates must be made to cover this. This began a discussion on rates. There were many variations of the Toronto plan considered, but they all amounted to some type of differential rate. The two plans considered best were to charge a monthly charge based on the number of rooms kilowatt hour rate, and, second, a fixed monthly charge based on the floor area of the house and a kilowatt hour rate. After a long discussion Messrs. Philip, Sifton and Archibald were appointed a committee to get an example of rates from all the municipalities and compare them, and compare estimated results of the various plans.

Grounding of Neutrals.

It was decided that all neutrals should be grounded.

Single vs. Three-Phase Transformers.

It was found that the manufacturing companies were not prepared to give full data of three-phase service and station transformers at the voltage desired, so this question was postponed for discussion at the next meeting. Meanwhile any municipality desiring to expedite the matter is to ask for tenders and the Commission will secure general data on the subject.

Next Meeting.

It was decided that the next meeting was to be held in Preston, October 26th and 27th.

The meeting then adjourned.

MINUTES OF THE THIRD MEETING OF MUNICIPAL ENGINEERS, HELD IN PRESTON ON TUESDAY AND WEDNESDAY, OCTOBER 26TH AND 27TH, 1909.

In accordance with the resolution passed at the second meeting, held in Toronto on October 12th, the engineers met on October 25th in the Council Room of the Preston Town Hall.

The meeting was called to order at 2 p.m., and the following were present:—

R. A. Ross	Consulting Engineer of the Commission.
J. S. Archibald	Woodstock.
E. I. Sifton	London.
J. J. Heeg	Guelph.
Mayor Weidenhammer	Waterloo.
Mr. Cross	Waterloo.
R. H. Meyers	Stratford.
Mr. Barnett	Stratford.
L. R. Reesor	St. Mary's.
W. R. Reynolds	St. Mary's.
Reeve Schwackhammer	New Hamburg.
J. Lappin	Preston.
P. B. Yates	Engineering Dept. of the Commission.

Mayor Mullen welcomed the representatives to Preston and tendered them the freedom of the town, wishing them success in their efforts and stating that Preston was trusting to their efforts to make each plant ultimately a success.

Mr. Ross was asked to take the chair, and the meeting was called to order. The minutes of the last meeting were not read, as each delegate had received a full report of the meeting.

Braces, Bolts and Insulators.

The discussion on bolts and braces was postponed. Quotations were read from the Locke Insulator Manufacturing Company, and the Ohio Brass Company on 8,350 insulators for 13,200 volt service. The quantities and destinations asked for were as follows:—

Stratford 1,200; Berlin 1,000; Guelph 1,000; Woodstock 100; St. Mary's 350; London 3,500; St. Thomas 1,200.

After a general discussion it was decided that the tender of the Ohio Brass Company was the best, and then insulator type No. 10044 was adopted. A copy of the tender was to be sent to the various municipalities with the request that they send their order for insulators to the Commission at the earliest possible date.

Standard Accounting System.

No action having been taken by the auditors of the municipalities in accordance with the decision on this subject at the last meeting, Mr. Reynolds moved that the secretary write to the municipalities interested asking them to have their auditors arrange a meeting, look over the systems collected, draw up a general system and be able to report at the next meeting of the Engineers.

Street Lighting.

The committee appointed at the last meeting to look up this subject reported their inability to investigate this matter and asked for further time. Arrangements had been made to finance the expenses of the committee and plans had been made to start on this report the 3rd of November.

Single or Three-Phase Transformers.

The Engineering Department reported that the companies apparently were not prepared to give data on three-phase transformers, as it had been impossible to secure anything more than general data from the manufacturing companies.

There was considerable discussion, but no attempt was made to reach a decision. It was finally postponed until next meeting, when some of the municipalities would have received tenders on both types.

Under this head there was some discussion regarding the taps on 13,200 volt transformers when used on 6,600 volt lines, and after considerable discussion it was agreed that all station transformers should be built for 13,200 volt service, using only the two standard taps, one of each primary coil.

Rates for Incandescent Lighting.

The discussion was started by the members of the committee, Mr. Sifton and Mr. Archibald (Mr. Philip being absent) reporting on the results of their comparisons of the old rates and methods with the proposed methods. Mr. Sifton presented a very interesting and ingenious chart showing a consumer's monthly and annual bill for any assumed consumption or number of rooms in the house.

There was a very great difference of opinion shown, and Mr. Ross finally suggested that each delegate collect all the data available covering typical cases in his own service, and from there determine what variations in Toronto's proposed system of charging would be necessary or desirable for his own requirements as to service, income, and his aims for popularizing and increasing the local consumption of electric light and power.

Municipal Inspection of all Wiring.

Mr. Reynolds stated that there was no law authorizing municipalities after inspecting wiring in residences, etc., to refuse a private corporation to connect thereto if the wiring is not up to standard. A municipal plant can refuse to connect to such an installation, but a municipality cannot control the wiring in residences that are connected to a private plant, in order to make them safe, not only to fire but also life. Mr. Sifton spoke on the same subject, and it was finally decided to ask the Hydro-Electric Power Commission to use their influence to have the propor legislation proposed.

Under this same heading it was decided that any legislation on this subject should be permissive, not compulsory.

The licensing of electricians was also suggested, but after considerable discussion and many suggestions it was decided to postpone this till the next meeting.

Mr. Sifton also spoke of the law passed by Quebec authorizing Montreal to lay conduits in her streets, and when laid, the wires of all companies using the streets must be put in the conduits, paying an annual rental to the city equal to fixed charges, operating expenses, etc.

Mayor Mullen then invited the delegates to a dinner at the Del Monte Hotel, to be held at the close of the evening meeting. His invitation was accepted in a very enthusiastic manner.

The meeting then adjourned to meet again at 8 p.m.

When the meeting was again called to order at 8 p.m. the following resolution was presented:—

Resolved, that the Hydro-Electric Power Commisison be asked to use their best endeavor to obtain such amendments to the Municipal Acts as will enable the

Municipalities of the Province to secure by by-law the inspection of all electric wiring within the municipality, and the enforcement of such rules as will ensure safe and proper construction, and in connection therewith this Committee of Engineers will assist in any way which may be deemed advisable. Carried.

After this resolution had been discussed and carried, many other questions of personal interest were brought to the attention of the meeting and solved. Mr. Sifton asked solution of the questions regarding underground construction, paper vs. rubber insulation, etc., while Mr. Lappan secured information regarding pole line construction of special interest to Preston.

Serivce Boxes.

These were considered unnecessary.

Specifications for Transformers.

A committee consisting of Mr. Aitken of Toronto, Mr. Richards of Guelph, and one engineer from the Commission was appointed to draw up a standard transformer specification so as to ensure a standard regulation among transformers purchased by the various municipalities.

Meters.

A very interesting discussion resulted, and it was decided that it was desirable to maintain a standard type, that there was not much advantage in any of the standard types, and that a test dial was desirable.

Feeder Regulators.

Some of the engineers who were considering feeder regulators compared specifications and estimating prices.

The meeting was then offered the use of a private car by Superintendent Kirkwood of the G., P. & N. Ry. Co., in order to visit Waterloo, Berlin, Hespeler and Galt. The kind offer was accepted and the meeting adjourned to meet at the G., P. and N. station next morning at 9 o'clock.

After adjournment the engineers were most happily entertained by the municipality of Preston at a banquet served in the drawing room of the Hotel Del Monte.

The next morning the engineers looked over local conditions in Waterloo, Berlin and Galt. They also saw the Commission's stations in Preston and Berlin, both of which are under construction. Dinner was had in Galt, after which the members looked over Galt, and dispersed to meet again in Toronto, November 16th.

Meetings of Municipal Auditors.

A meeting of Municipal Auditors has been planned for November 15th in Toronto, to draw up a standard system of accounting to be used by all municipalities taking power from the Commission. A clear and intelligible system of accounting would be of service in overcoming the one possible argument against municipal ownership and operation.

Miscellaneous Work.

In order to determine the cost of pumping water for municipal use the annual reports for several years of the Detroit Pumping Plant were investigated and

analyzed to determine the cost per horse power used. This has been of general use to the municipalities.

The Niagara Power Union asked us to prepare lists of standard material and apparatus to be filled in by the municipalities in order to bulk the orders. This was done, but the co-operation of the municipalities was not secured by the Power Union. This has been taken care of by the Municipal Engineers in their meetings.

A report was written answering the arguments and showing the fallacies of the "Power Talks" printed in Buffalo papers as advertisements by the Cataract Power and Conduit Company, of Buffalo. These proved by incorrect figures and arrangements that power would cost more to the user in Toronto than it does in Buffalo. A careful analysis shows that their statements are not correct, or where correct are misleading.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

IV. HYDRAULIC REPORTS, 1909.

Synopsis.

Dog Lake Storage Dams.

The old Jennison Charter, purchased by the Kaministiquia Power Company, included, in addition to the development rights at Kakabeka Falls, the right to raise the water of Dog Lake three feet above normal level, and to regulate the water for their own purposes. It was recognized that the exercise of this right would, to a very great extent, reduce the ultimate capacity of the important power site at Dog Lake, and to maintain this site at its present rating it was considered necessary to remove the control of the storage from private interests and to have absolutely independent regulation.

A proposal was therefore made to the Kaministiquia Power Company to take over their interests in the Dog Lake storage, in return for which the Government was to construct storage works to control 20 feet of water on Dog Lake instead of the three feet to which the Power Company was entitled under the Jennison Charter. In view of the fact that the waters of Dog Lake could not be used to any extent for peak load storage, this proposition was very much to the advantage of the Power Company, and the independent regulation by the Government removed all anxiety as to injury to the power site at Dog Lake.

In the early part of March of the present year the negotiations were completed along the general lines indicated in Report No. 2, hereto appended, this being a revised copy of a report made previously to the Minister of Lands and Mines. Upon the completion of the negotiations, the Commission's Hydraulic Engineer was sent to Dog Lake to make the necessary surveys of the sites of the dams. This matter is dealt with in Report No. 3, hereto appended.

After the preliminary work had been completed by the Commission, the construction work on the dams was taken over by the Department of Public Works, and the Commission's Hydraulic Engineer was retained to draw up specifications and prepare plans. The surveys indicated that four dams would be required to develop the storage to the limit of capacity, and the plans were prepared accordingly. It was decided, however, to call for tenders for the construction of the two main dams only, leaving the construction of the other two to a later date. The estimated cost of these two dams was approximately $40,000, and the contract was let for $35,600, the work being in progress at the present time.

In October the Commission's Hydraulic Engineer visited the site of work.

Mississippi Storage.

In January, 1909, a deputation representing the municipalities upon the Mississippi River waited on the Commission for the purpose of soliciting Government aid in the matter of improving the power conditions of the Mississippi River. The question was considered and a report was prepared, in which the construction of three storage dams was proposed. The scheme is outlined in Report No. 5, hereto appended. Details are furnished as to the material benefits to be derived by the various municipalities interested, together with an estimate of capital cost.

Renfrew Power.

In the fall of 1908 the municipality of Renfrew, being threatened with a shortage of power for their municipal requirements, applied to the Commission for assistance and advice in the matter of developing a small power on the Bonnechere River within the corporation limits. A report was prepared, approving of the scheme and giving an estimate of cost, and a by-law was passed authorizing the Council to borrow the amount necessary to carry out the work.

In April, 1909, while the town was negotiating for the purchase of the power site, some trouble arose over the value of a piece of property above the development site which would be affected by backwater. The Commission was asked to determine a basis of valuation for this property, and the matter is set forth in detail in Report No. 6, hereto appended.

At this time also the town had trouble with the Renfrew Milling Company. This company was part owner of a water privilege immediately below that purchased by the town, and there was some uncertainty as to whether the Milling Company could back the water up sufficiently to injure the town's property.

Pending the investigation of this matter, the town, as a protective measure, obtained an option on the portion of the privilege which was not owned by the Milling Company.

Negotiations were still in progress when in April, 1909, the dam of the Renfrew Milling Company was carried away by the spring freshet, and the Milling Company then made a proposal that the town take over their water rights and develop the full available head. In return for the concession of their rights the Milling Company was to be supplied free with power in any quantity required up to 235 horse power. The Commission was asked to consider this proposal and reported against it, advising that the privileges of the Milling Company be purchased outright for a fixed sum, and power sold at a price sufficient to at least cover the annual charges on development. This matter is set forth in detail in Report No. 7, hereto appended.

Acting on the Commission's advice, the town entered into negotiations with the Milling Company and allied interests, and a figure was quoted which was considered reasonable. The question was then once more referred to the Commission, together with the town's estimate of revenue from contracts obtainable, and their estimate of annual charges. While the scheme as a whole was reasonable, some details were open to criticism, and the question is analyzed in Report No. 8, hereto appended. Although the scheme has not yet been reduced to a working basis, there seems no reason why it should not ultimately be carried to a successful issue.

Nipigon Power.

In May, 1909, a Buffalo Company applied to the Commission for information in connection with the power at Cameron's Pool on the Nipigon, having in view the possible establishment of a pulp industry. Report No. 9, hereto appended, was prepared for this company's information, and the Commission's Hydraulic Engineer was sent to Buffalo to lay the situation before them. This power is the one which another private corporation proposes to develop for the supply of Port Arthur.

Huntsville Power.

In response to a request from the municipality of Huntsville, the Commission's Hydraulic Engineer was in September, 1909, sent to investigate power conditions in the Muskoka River watershed, and report on the possibility of obtaining power

for the municipality of Huntsville. The most important point considered was the possibility of diverting a portion of the Lake of Bays waters into Peninsula Lake, in order to take advantage of the 104 foot difference in level between these lakes for power purposes. Other possible sources of power were also examined, and the matter is fully set forth in Report No. 10, hereto attached.

Moira Storage.

A project to improve the Moira River for power purposes was the subject of considerable negotiation during the year 1907, between the Commission and the Committee representing the Moira municipalities. In November of 1907 the Commission's Hydraulic Engineer was sent to investigate conditions in the Moira watershed, and a report was prepared in December of the same year and forwarded to the Committee. In this report it was stated that the figures submitted therein were approximate only, and that a detailed instrumental survey of the storage basins would be necessary before any definite conclusions could be arrived at.

In August and September of 1908 the Commission received copies of resolutions passed by the municipalities in the Moira watershed, asking that this survey be made, and in January of 1909 a party was placed in the field to carry out the work. The survey was completed by the end of March, 1909, and a revised report was prepared, which is now in the hands of the municipalities. See Report No. 11, hereto appended.

Up to the present time the Commission has not been asked to take any further action in the matter.

In addition to the cases above specified, numerous enquiries of a hydraulic nature have been answered verbally or by letter, and it is in connection with the answering of enquiries of this kind that the need of more general and complete hydraulic information with regard to the power and storage possibilities of the Province is required.

REPORT No. 1.

Dog Lake Storage.

(*a*) *Report on Storage Possibilities.*
(*b*) *Report on Surveys.*
(*c*) *Specification for Construction of Dams.*

(*a*) *Report on Storage Possibilities.*

Information received from meteorological records with regard to rainfall, and from a civil engineer of Port Arthur with regard to the Dog Lake watershed, indicates that the total estimated run-off of the watershed will be about 40,591 millions of cubic feet under mean conditions of precipitation.

Assuming the normal summer level of Dog Lake at elevation 1,370, a ten foot rise of water level would make the maximum storage elevation 1,380. According to this civil engineer's plan, the minimum elevation of the sluiceway sills would be about 1,360, so that there would be a total draft on the sluices of 20 feet. By drawing down the lake 15 feet from elevation 1,380 it would be possible to maintain a continuous discharge of 1,000 cubic feet per second from Dog Lake for 255 days

out of the year. To maintain this discharge for the remaining 110 days would require 9,504 million cubic feet of unstored run-off, and as the estimated unstored run-off is about 18,427 million cubic feet, it might reasonably be supposed that this amount of now regulated flow would keep the minimum above 1,000 second feet for the above-mentioned interval. This, however, could only be determined by experiment.

The above calculations were based upon a mean annual rainfall of 25 inches, of which 50 per cent. (12.5 inches) was assumed available for storage. There will, of course, be seasons when the precipitation will fall below this, but it will be noted that under the conditions outlined there will be 20 per cent. of the total storage capacity of the lake held in reserve from year to year, so that, leaving out the possibility of two extremely dry years occurring in succession, this reserve capacity should be able to make good the deficit of any one dry year.

If we consider the extreme minimum, as evidenced by the records of rainfall at Port Arthur, the available precipitation for run-off would be about 7 inches. The available precipitation on the watershed would then be about 22,755 million cubic feet, which is equivalent to 15.5 feet on the sluiceway sills, and would furnish a continuous discharge of something over 700 cubic feet per second. From this it might be assumed that 700 second feet is the minimum continuous flow to be derived from Dog Lake, with 1,000 second feet as a probable figure.

With regard to an agreement with the Kaministiquia Power Company, it would seem advisable to consider the question of the basis of the discharge from the outlet of Little Dog Lake. In this way all necessity for the discussion of possible power development at Dog Lake would be obviated—that is, if the Commission agreed to maintain the discharge from Little Dog Lake at or above a certain minimum.

It is to be noted that the primary function of the projected works is to provide artificially a more constant and regular flow than is possible with the river in its natural state, and consequently the waters in Dog Lake should be manipulated solely for storage purposes, and not under any circumstances for load factor accommodation. This means that all plants operating below Little Dog Lake must provide load factor storage, at or near their respective headworks, to impound any unused portion of the approximately continuous discharge from Dog Lake, as regulated by the Government. In case of development of Dog Lake it would mean that the fluctuating discharge through the wheels in the power house must be supplemented by a discharge through the dam sluices of sufficient volume to maintain the minimum discharge agreed upon at the outlet of Little Dog Lake.

In any agreement thus drawn up there should be inserted a conditional clause to the effect that should any method be proposed by the various companies generating power on the river by which the water can be otherwise regulated to their mutual advantage, the same shall be submitted to the Commission, and the Commission will endeavor to control the storage as far as possible in accordance with their wishes. In this event the manipulation of the water for load factor accommodation might be permissible.

It may be said that the question is simply one of improving, as far as possible, the natural conditions of flow in the Kaministiquia River. The discussion should be carried on in terms of storage and volume of flow, and the words "horse power" should be eliminated.

(*b*) *Report on Surveys.*

Presented herewith is a report on the survey of the sites for the proposed storage dams at the outlets of Dog Lake, on the Kaministiquia River, with accompanying plans, contours, cross-sections, etc. These plans are based upon an instrumental survey, and the lines and levels were checked in such a way as to prove them reasonably accurate, so that they can be safely used for estimating purposes.

South-west Wing-dam.

This portion of the survey resulted in a material change in the plans of a Port Arthur Engineer, upon which the details of the scheme were originally based. The cross-section chosen by him for the S.W. wing-dam was at the mouth of the so-called "lost channel." at which point the bed-rock was covered by 16 feet of saturated peat. This fact gave rise to the supposition that for a comparatively small outlay the channel could be opened up sufficiently to allow the waters of Dog Lake to be drawn down, if necessary, to elevation 1,360, or 10 feet below normal level (El. 1,370), thus giving 20 feet of water on the sills of the regulating sluices, it being the intention to raise the water level to El. 1,380.

It was found, however, that the bed-rock about 350 feet back of this section rose to within one foot of the natural surface, and continued more or less in this position for the remaining length of the channel, about 750 feet.

A new cross-section was therefore located by means of borings and test-pits upon this ridge of bed-rock, which, while considerably longer than that located by the Port Arthur Engineer, will permit the construction of a dam having only half the maximum height and one which can be built on an absolutely dry base without unwatering, while upon the previously chosen location the unwatering would have been a serious problem, probably involving the use of steel sheet-piling.

The previous and revised locations of this wing-dam are shown on the general plan, and Profile No. 1 gives the details of the revised location.

South-west Channel.

As the topographical conditions at the site of the S.W. wing-dam proved unfavorable, it was thought well to make a more or less detailed examination of the S.W. outlet, with a view to ascertaining what amount of rock excavation would be necessary to give the depth of run-off which the S.W. wing-dam channel had previously been considered capable of providing. For this purpose the channel of the S.W. outlet was cross-sectioned and the lake entrance sounded. This information has been incorporated in the general plan, and sufficient data will be found thereon to make a reasonable estimate of the amount of rock excavation necessary to lower the channel to El. 1,360, and also to determine the dimensions of crib-work necessary for unwatering.

Of the rock to be removed probably 30 per cent. is loose rock and boulders, and the remainder solid rock, though it was not possible to approximate this definitely, owing to the ice and snow.

The location of the dam in the S.W. channel is shown on the general plan, and also in detail on Profile No. 2. The cross-section is practically the same as that chosen by the Engineer from Port Arthur.

North-east Channel.

This is the main outlet of Dog Lake, and is shown on the general plan and also in detail upon Profile No. 3. This cross-section is about 40 feet above that chosen

by the Port Arthur Engineer. The revised location will be more favorable for unwatering, and the shore slopes will permit of safer and better abutment construction, more especially in the event of construction of a timber dam. It was not possible to take soundings in this channel, which had a maximum depth of about four feet, with a boulder bottom. The depth to bed-rock on this portion of the profile is therefore uncertain, but should not average more than four feet. This cross-section is located in the middle of a rapid of considerable velocity, and the water at the crest was not more than eighteen or twenty inches deep at the time of the survey.

The construction of this dam will probably be the main item of the projected works, both as to quantity of material and expense in unwatering.

North-east Wing-dam.

This wing-dam is a long, low structure which will be necessary to cap a low ridge, as shown on the general plan and also in detail upon Profile No. 4. Borings made along this location showed rock within eight inches to one foot of the surface where there was no actual out-crop. Owing to uncertainty as to whether this was bed-rock or boulders, two men were left to sink test-pits every fifty feet along the doubtful section, and their report should shortly come to hand.

Timber.

The timber in the country adjacent to the shores of Dog Lake consists of tamarack, spruce, jack-pine and poplar. There is abundance of round timber adjacent to the sites of dams suitable for the construction of temporary cribs for unwatering purposes, but if the construction of more or less permanent timber structures is considered, square timber will be necessary, and this will be very difficult to procure. There is a fair amount of timber adjacent to the shores of Dog Lake, mostly tamarack, which will square up ten by ten inches, twelve feet long, with here and there a stick which will square up twelve by twelve inches or better. Probably most of the ten by ten inch timber would produce a twenty foot stick with a wain, which in this case would not be a serious fault.

The great bulk of the timber would have to be towed across the lake, any distance up to fifteen or twenty miles, and special precautions would have to be taken to tow the green tamarack.

Construction.

In the construction of these works it would seem that the two main objective points should be, first, to give the twenty foot run-off which was talked of during the preliminary negotiations; and second, to supply storage water from Dog Lake during the next low-water season, if at all possible.

In this event the first piece of work should be the construction of a coffer-dam at the mouth of the S.W. channel. This could be started at once, with round timber sufficient for the purpose right at the site. The rock in the S.W. channel could then be removed to El. 1,360 during the summer and fall, and in the early winter months of 1910 the water could be lowered two or three feet in the lake, say to El. 1,365, by means of sluices in the S.W. coffer-dams. This would serve the double purpose of providing storage water for power, and of unwatering the N.E. or main channel. With lake level at 1,365, the boulder channel at the head of the rapids would project probably two feet above lake level, and reduce the flow in the main channel to such an extent that it could be controlled by a wooden flume, and possibly might cut the flow off completely. This would enable the base for the

main dam to be stripped to bed-rock, and the lower and more massive sections of the dam could be placed before the spring freshet. The construction of the wing-dams could, of course, go on independently at any time.

It will be seen that the above plan obviates the necessity of teaming cement this spring. All that it would be necessary to take in this spring would be material for the building of the coffer-dam, material and apparatus for taking out the rock and camp supplies, provisions, etc. The Kam tote-road should be able to handle the bulk of this class of freight if the work is rushed. Good puddle clay for the coffer-dam was located in one of the test-pits about a quarter of a mile from the site of the coffer-dam.

In the meantime plans for the main structures could be perfected, the cement shipped by water this summer and delivered to Dexter or Kaministiquia. The hauling to the lake could then commence next fall under the most favorable circumstances, the requisite storage would be supplied, and the unwatering expenses reduced to a minimum.

REPORT No. 2.

Mississippi Storage.

Mississippi River.—Re Storage on Upper Lakes.

(1) *General.*

The watershed of the Mississippi River is contained principally in the Counties of Frontenac, Lanark and Carleton, and embraces an area of about 1,400 square miles. The large lake area in this watershed has been extensively used by the lumber companies to obtain storage water for driving purposes, with the result that a large number of lumbermen's dams were built, which are at present in a more or less dilapidated condition.

The deforestation of this watershed has had the usual result of producing heavy spring floods, with small and insufficient discharge during the period of minimum flow. It is the wish of the power users along the river to have the minimum flow augmented as much as possible, by having the old lumbering dams at the outlets of several of the larger lakes torn out and replaced by tight and permanent structures, the water thus impounded to be used and regulated for power purposes only.

(2) *Precipitation and Run-off.*

The mean value of annual precipitation on the watershed of the Mississippi is approximately thirty inches, this being assumed as a safe value for an average year. A study of the characteristics of the watershed and the climatic conditions gives rise to the opinion that only about 33 1-3 per cent. of this precipitation is available for power purposes, the remainder being dissipated by evaporation (see page and the requirements of vegetation). Subsequent calculations, therefore, will be based upon the assumption that only ten inches of the annual rainfall is accounted for in the annual run-off of the watershed.

(3) *Natural Storage Basins.*

In the northern portion of Frontenac County, chiefly in the Townships of Palmerston, Clarendon and Barrie, are a considerable number of lakes of good size, which constitute the headwaters of the Mississippi River. Of these lakes the principal are:

Mazinaw	6.8	sq. miles	area.
Long	4.37	" "	"
Mississigagon	2.1	" "	"
Gull	9.18	" "	"
Cross	5.46	" "	"
Indian	2.2	" "	"

Of the above lakes, only the areas of Cross, Gull and Long Lakes have been accurately determined, these lakes being considered the best suited for storage purposes, and the topographical features of the outlets being favorable for dam construction.

Mississippi Lake has been omitted from the above list of possible storage basins, as a dam already exists at its outlet, which supplies power for several industries in Carleton Place, to which the lake is adjacent. This lake cannot, therefore, be utilized to any extent for storage purposes.

(4) *Storage Capacity and Annual Run-off.*

Using the above figures for available precipitation and lake area, the following figures obtain:

Gull Lake	57 sq. mill.	1,283 mil. cubic ft.	1,324 mill. cubic ft.
Long Lake	148 " "	613 " " "	3,438 " " "
Cross Lake	434 " "	2,760 " " "	10,083 " " "
Carleton Place	942 " "	4,656 " " "	21,875 " " "
Almonte	984 " "	4,656 " " "	22,851 " " "
Pakenham	1,310 " "	4,656 " " "	30,422 " " "
Galetta	1,402 " "	4,656 " " "	33,558 " " "

(5) *Carleton Place.*

The storage water available to Carleton Place is 4,656 millions of cubic feet, and the annual run-off is 21,875 millions of cubic feet, leaving 17,219 millions of cubic feet to be distributed naturally over portions of the year when storage water is not required. The above-mentioned quantity of storage water, if properly regulated, would maintain a continuous uniform flow of 600 cubic feet per second for three months at Carleton Place, which is equivalent to 54 horse power continuous 24-hour power per foot of head, at the turbine shaft, 80 per cent. efficiency.

(6) *Almonte.*

The storage water available to Almonte is 4,656 million cubic feet, and the annual run-off 22,851 million cubic feet, leaving a non-regulated surplus of 18,195 million cubic feet to be distributed naturally over nine months of the year. The stored run-off will maintain a continuous uniform flow of 600 cubic feet per second at Almonte for the remaining three months of the year. This is equivalent to 54 horse power continuous 24-hour power per foot of head at the turbine shaft.

(7) *Pakenham.*

The storage water available to Pakenham is 4,656 million cubic feet, and the annual run-off is 30,422 million cubic feet, leaving a non-regulated surplus of 25,766 million cubic feet to be distributed naturally over nine months of the year. The stored run-off will maintain a continuous uniform flow of 600 cubic feet per second at Pakenham for the remaining three months of the year. This is equivalent to 54 horse power continuous 24-hour power per foot of head at the turbine shaft.

(8) *Galetta.*

The storage water available to Galetta is 4,656 million cubic feet, and the annual run-off is 33,558 million cubic feet, leaving a non-regulated surplus of 28,902 million cubic feet to be distributed naturally over nine months of the year. The stored run-off will maintain a continuous uniform flow of 600 cubic feet per second at Galetta for the remaining three months of the year. This is equivalent to 54 horse power continuous 24-hour power per foot of head at the turbine shaft.

(9) *Summary of Power Capacities.*

In the following summary the normal low-water flow, as given in the fourth report of the Hydro-Electric Power Commission, has been used for the various locations on the river, and the extreme minimum of approximately 150 second feet, which obtained during the latter part of 1908, has been assumed as applying to all locations except High Falls. These figures would apply closely to Carleton Place and Almonte, but would probably be too low for Pakenham and Galetta, as these two latter towns have the flow of several tributary creeks which reach the main stream below Almonte. These small tributaries are, however, of little importance during the period of minimum flow, so that it will be reasonable to assume uniform conditions throughout.

Location.	Available head in feet.	Capacity at normal low water.	Capacity, extreme minimum.	Estimated capacity with storage.
High Falls	72	915 H.P.	655 H.P.	3,900 H.P.
Carleton Place	12	272 "	160 "	655 "
Almonte	51	1,390 "	695 "	2,780 "
Pakenham	18	540 "	250 "	980 "
Galetta	25	780 "	340 "	1,365 "

(10) *Survey and Construction Details.*

While the attached estimate gives a reasonable indication of the capital expenditure which would be necessary for the construction of the proposed work, sufficient data are not at hand for accurate determination of quantities or details of design. Before proceeding with construction, therefore, it would be necessary to make detailed surveys of the sites of the various dams with cross-sections, soundings, etc. It will also be noted that in computing minimum power capacity the period over which it would be necessary to use storage water has been taken at three

months. In the case of Pakenham and points below this assumption seems quite reasonable owing to the large surplus run-off, but in the case of Almonte, Carleton Place and above there is room for doubt, and the only means of definitely establishing the point is by means of frequent measurements of flow and water level at different points along the river during the different seasons. If storage water be required for a longer period than that specified above, the minimum flow will be correspondingly decreased and vice versa, but in any case it is safe to say that the construction of the projected works would be of material and lasting benefit to the power users on the Mississippi, and the sites of the dams are of such a nature as to insure safe and permanent structures.

(11) *Estimates of Capital Cost.*

The estimates presented herewith include the estimated cost of three concrete storage dams located at the outlets of Cross, Long and Gull Lakes. The most expensive structure will be that at Cross Lake, where the possibility of raising the water eighteen (18) feet above normal winter level is contemplated. This will entail the construction of about 450 lineal feet of dam, with necessary spillways and sluices. The Gull Lake estimate provides for the construction of 200 lineal feet of dam designed to raise the water five (5) feet above winter level. The Long Lake estimate provides for the construction of 180 lineal feet of dam designed to raise the water five (5) feet above winter level.

Cross Lake Dam.		
Dam removal and excavation	$1,200	
Concrete and regulating apparatus	31,800	
Coffer-dam and unwatering	3,300	
		$36,300
Gull Lake Dam.		
Dam removal and excavation	$ 500	
Concrete and regulating apparatus	1,700	
Coffer-dam and unwatering	2,000	
		4,200
Long Lake Dam.		
Dam removal and excavation	$ 500	
Concrete and regulating apparatus	2,300	
Coffer-dam and unwatering	2,000	
		4,800
Total		$45,300
Engineering and Contingencies, 10 per cent		4,500
Interest during construction, 2½ per cent		1,200
Land damages, say		2,000
Total Capital Investment		$53,000

Supplementary.

In the above estimates, in order to make the new construction absolutely independent of the old dams, an item covering the cost of new coffer-dams has been included. If the old dams could be made sufficiently tight to use as coffer-dams, the total capital investment ($53,000) would be reduced to about $47,000.

Also, for present needs, it would seem sufficient to build a new dam at Cross Lake only, and put temporary repairs on the other two dams. As Gull and Long Lakes drain into Cross Lake, the Cross Lake dam should be able to take care of any leakage through the wooden structures at Long and Gull Lakes, all regulation being handled at the Cross Lake dam. Under these conditions the capital cost would be reduced from the above amount to about $39,500.

February 17th, 1909.

REPORT No. 3.

Renfrew Power.

Our Hydraulic Engineer visited Renfrew in April, 1909, to determine and report on the value of a certain property which the town wishes to acquire in connection with its contemplated power development.

The property in question belonged equally to Messrs. T. A. Low and J. H. Barnet.

The cause of the dispute was that the price asked by the owners of this property (Barnet and Low) was considerably in excess of what the town considered them entitled to receive, and the question turned on the point as to whether the property in question had any claim to be called a water-power, or whether it should be classed as an ordinary water lot.

All the property was originally part of the Russel estate, and in April of 1899 this property was deeded to Mr. Low, along with nineteen (19) acres of land at different points on the river between the C.P.R. bridge and the plant of the Renfrew Power Company, this parcel comprising practically all the water-power on the Bonnechere within the limits of the town of Renfrew. In October of the same year a portion of the above property was deeded to Mr. Hough. A portion of this transferred property is now held by the town under option, and the town wished to acquire some additional property from Barnet and Low. The natural head on this property is due to a flat rapid which has a drop of eighteen (18) to twenty-four (24) inches during the low-water period, but is entirely obliterated during high water by the back-water of the Hough dam immediately below. The dam shown on the plan does not at present exist, but was built by a Mr. Russel some years ago for storage purposes; but it is said that he was obliged to tear it out on account of back-water damage occasioned to property on the river above. Mr. Russel was obliged upon one occasion to pay $300.00 damages for flooding the kilns of the Brick and Tile Company, whose property is shown on the map. The channel of the river at the site of this old dam has a very uncertain bottom and the left bank is low, the topographical features on the whole being unfavorable for dam construction. It will, therefore, be seen that from the point of view of economical development the site is practically worthless as it stands. In arriving at the conditions upon which the value of this property should be based, the question should be considered from two viewpoints, namely, its value to the town and its value to the present owners.

Value to the town: The dam on the Hough property, which the town has optioned, makes available a head of seven (7) to eight (8) feet during low water, and five (5) to six (6) feet during high water, when the back-water of the Renfrew Milling Company's dam is properly regulated. The acquisition of the Barnet and Low property would enable the town to utilize eighteen (18) to twenty-four (24) inches of extra head during low stages of the river, but would be of practically no benefit during the flood period. It will be seen, therefore, that owing to the back-water from the Hough dam the material benefit to be derived from the purchase of the Barnet and Low property will be a constantly varying quantity, the variation being from zero at high-water stages to a maximum during extreme low water. Thus the value of the Barnet and Low property lies solely in the fact that the town would be enabled to install permanent works capable of permanently holding head-water at or about flood level, and derive the benefit of the extra head during that portion of the year when it is not provided by natural conditions of flow.

Value to present owners: Considered as a site for power development, it is evident that the property in its present state has no value, and the question is now to determine under what conditions it would be entitled to consideration from a hydraulic standpoint. To begin with, the class of service required by the town does away with all consideration of average power capacity and makes necessary the consideration of minimum capacity only. From information at hand it seems certain that 15 horse power per foot of head is a very liberal estimate for the minimum power capacity of the Bonnechere River in the vicinity of Renfrew. This being the case, it seems reasonable to assume that nothing under a head of four (4) to six (6) feet (60 to 90 horse power) would entitle this location to be classed as a water-power. The back-water damages due to the creation of such a head would be quite extensive, and would involve the purchase of practically the whole plant of the Brick and Tile Company, the purchase of a considerable portion of the Ferguson property, and flooding privileges along the water-front of Aberdeen Park. It would also flood the lower end of Ready Street, and seriously interfere with the waterworks piping system as at present located. All things considered, it is very doubtful if sufficient privileges could be secured from the various parties interested, above and below the railway bridge, to raise a commercially feasible head on the Barnet and Low property, and in view of this it is submitted that the property in question should not be classed as a potential water-power, and should be appraised on the basis of its realty value only, as would be the case should the town be obliged to acquire rights farther up the river.

The town controls the road allowance across the river at Raglan Street. There is said to be a head of about six (6) feet on this property under natural conditions, and the town wishes for a report on this property as a possible source of power. At the time of our Engineer's visit to Renfrew the property was submerged by a flood and back-water from the Renfrew Power Company's dam, and no reliable data could be procured until later in the season.

Presented herewith is an estimate of the probable cost of developing 350 horse power at the second chute of the Bonnechere River, in the Town of Renfrew.

An estimate of the cost of developing an eleven foot head for municipal purposes was made some months ago for the Town of Renfrew, and a by-law empowering the Council to spend $35,000 in the development was passed last spring. In the meantime, however, the dam of the Renfrew Milling Company just below the property which the town proposed to develop was carried away by the spring freshet. Mr. Fred Hough, of Renfrew, has a water lot and mill privilege in connection with this dam upon which the town has option for $10,000, and since the destruction of the dam the Milling Company has made the following proposition, viz., that the town purchase the Hough rights for the amount above mentioned, and also take over the rights of the Milling Company. As a return for the making over their rights to the town, it was stipulated that the town was to develop the property and supply them free with electric power in any quantity required up to 225 horse power.

The Milling Company has been drawing about 135 horse power from this privilege, and three other industrial concerns have been drawing about 100 horse power from the same source. This 235 horse power, in addition to the municipal and other minor requirements, would probably make up the 350 horse power provided for in the accompanying estimate. Under ordinary conditions the $7,700 of

annual charges would be chargeable to this 350 horse power, making the annual cost about $22 per horse power. In this case, however, there would be no revenue from the 135 horse power supplied to the Milling Company, and the annual charges would have to be met from 350 less 135, or 215 horse power; that is, 215 horse power would have to be charged for at the rate of $36 per horse power per year to meet the annual charges of $7,700. A bad feature of this scheme would be that at any time the Milling Company might call on the town for the balance of the 225 horse power, and another generating unit would have to be installed at a cost of about $12,000, from which there would be absolutely no revenue until a market was found for the surplus power.

The scheme in its present shape does not look commercially feasible, and, all things considered, the best plan would be to purchase outright, for a fixed sum, all the privileges for which a clear title can be shown, and to sell the converted electric power to the various consumers as required, and for a price which will amply cover annual charges. This would appear to be the only safe plan for the town to follow, and, failing this, it would be well to take up the original scheme of developing the eleven foot head, after first determining definitely to what extent the water can be legally backed up from the Milling Company's dam, about which question there has recently arisen some uncertainty.

Before the whole question can be decided, there are many small points which will require consideration, but the settlement with the Milling Company is the main issue, and the feasibility of the scheme depends primarily upon the terms to which the Milling Company will agree, and afterwards upon the price the consumers are willing to pay.

It is recommended that the Commission take no further action in the matter, until the town has had an opportunity to deal further with the Milling Company, and reports progress.

Estimate.

Dam, head works and power house	$14,400	2%	$288
Hydraulic equipment and accessories	7,400	5%	370
Electric equipment and accessories	4,300	6%	258
Motor, pump and accessories	2,600	6%	156
Excavation and unwatering	9,700	...	...
Town's share of cost of storage (say)	3,000	2%	60
Alterations in piping system (say)	3,000	...	...
	$44,400	....	$1,132
Engineering and contingencies, 10%	4,440	....	....
Cost of Hough privileges	17,000	....	....
	$65,840		
Interest during construction, 2½% ($65,840)	1,646	....	....
Annual interest, 4½% ($67,486)	....	....	3,037
Sinking fund (30 years) ($67,486)	.....	...	1,019
Operation	.....	....	2,500
Grand Total	$67,486	....	$7,688

The above estimate covers the dam, head works and power house for a plant of 720 horse power ultimate capacity, with one penstock and unit installed for 350 horse power initial capacity. The ultimate capacity is based on the probable flow which would result from the building of storage dams, for which an allowance has been made in the estimate. A head of 37 feet would result from the pro-

posed combination of the 11-foot head now owned by the town, for which $7,000 was paid, and the head of the Renfrew Milling and lower Hough property, the lower Hough property being held under $10,000 option as mentioned above.

The proposition submitted by the Power Committee of the Municipality of Renfrew has been carefully considered, and the following conclusions are submitted:—

(1) That the annual charges will not be met by developing the site for 375 horse power and selling the output for $20 per horse power per year.

(2) That the town would not be justified in paying $40,000 for the Milling Company's rights and giving them power for $20 per horse power.

(3) That if a market were available for 700 horse power the site could be developed for full capacity and power sold for $20 at a profit.

Conclusion No. 1.—It will be noticed that in the Power Committee's estimate of annual charges, nothing has been allowed for operation and administration. In our estimate submitted under date of August 2nd, 1909, $2,500 was allowed to cover this item. Doubtless the committee considered that as the power and waterworks plants will be combined under the proposed scheme, the operating charges on the waterworks would cover the whole. This, however, does not appear justifiable, and at least $1,500 would be allowed for operating and administration charges on the power proper. This would bring the committee's total annual charges up to $8,639 for 375 horse power, or $23 per horse power year.

Conclusion No. 2.—For argument's sake assume that the site will be developed for full capacity of 700 horse power on a co-operative basis, assessing the consumers pro rata to meet annual charges. On this basis of the August estimate the annual charges for full development would be approximately $9,000. As the Milling Company's interests will use 200 horse power they will be liable for two-sevenths of the annual charges of about $2,500. They will be saved this amount by the present scheme and in addition will have the interest on $40,000, which at 5 per cent. would amount to $2,000, making $4,500 in all. To offset this, they agree to pay $4,000 a year for 200 horse power, leaving a balance of $500 a year in favor of the Milling Company's interests. This sum capitalized at 5 per cent. would be equivalent to $10,000. It is therefore submitted that a price of $30,000 for the Milling Company's interests would be fair to all parties, though until full capacity was developed and sold the municipality would be the loser.

Conclusion No. 3.—Using the August estimate as a basis, the total capital cost for full development would be about $122,000 and the annual charges $12,700 assuming $40,000 as the price paid to the Milling Company's interests. Under these conditions, therefore, annual charges could be met by selling 700 horse power for $18 per horse power per year, so that an available market of 700 horse power and a price of $20 per horse power would place the scheme on a paying basis.

In view of the above facts the town would clearly not be justified in entering into a contract to supply only 375 horse power at $20 per horse power. When the detailed estimate of the town's engineer is prepared, an approximate rate could be established, which would be satisfactory to the Commission. This rate would be adjusted yearly, as the market expanded, and by the time the full capacity had been developed and sold, there is no doubt that power could be sold for less than $20. This would seem to be the only way to safely handle the scheme from the Commission's standpoint.

In the scheme outlined by the committee, they figure the sinking fund on a thirty year basis, while the terms of the power contracts are for ten years only. This is a matter which may require consideration.

REPORT NO. 4.

Nipigon Power.

Power Site at Cameron's Pool.

This power site is the most important on the Nipigon, and from the standpoint of topographical conditions is one of the finest in the Province.

As will be seen from this plan the scheme of development is remarkably simple, and the capital cost per horse power very low indeed.

Tugs can, under ordinary conditions, travel eleven or twelve miles up the river from Nipigon Station to within about two miles of the Cameron's Pool power site.

Further navigation is impossible owing to the Camp Alexander Rapids, which extend about four miles up the river. Natural obstacles of this kind extend all the way up the river at intervals of one to six miles until Lake Nipigon is reached.

They are as follows:—

Camp Alexander Rapids	2½ mile portage.
Lake Jessie Narrows	Very shallow water.
Split Rock	¼ mile portage.
Island Falls	Short portage, 7.5 feet rise.
Pine Portage	2 mile portage.
White Chute	¼ mile portage.
Flat Rock	1 mile portage into Lake Nipigon.

These portages all occur in a distance of about twenty-two miles, and the total rise in this distance is 250 feet.

As shown in the table of the plan, discharge measurements were made upon this river extending over a period of one year, and the minimum recorded discharge is 5,800 sec. feet in March, 1906. For estimating purposes in the Commission's Fifth Report the discharge was taken as 5,500 sec. feet, or 500 horse power per foot of head at the turbine shaft. The hydraulic capacity of the Cameron's Pool site is then 19,500 horse power minimum under ordinary low water conditions, though a drought like that of last summer would possibly reduce this somewhat.

In our estimate in the Fifth Report the possibility of transmitting power to Port Arthur was considered, and the following is a summary of our figures:—

Turbine capacity of plant	16,850 H.P.
Low tension power delivered to Port Arthur, all losses deducted.	14,025 H.P.

	Capital Cost.	Annual Charges
	$	$
Development	673,182	63,504
Step-up Transformation	140,838	19,485
Transmission	416,175	27,981
Step-down Transformation	130,213	16,692
Patrol	.....	2,250
Administration	.....	6,656
Totals	1,360,408	136,568

Cost of 1 H.P. to build on basis of 14,025 H.P. delivered at Port Arthur, $97.00
" " annually " " " " " 9.75

REPORT NO. 5.

Huntsville Power.

Presented herewith is a report on power conditions in the Muskoka River watershed, with special reference to such sites for development as would be available for the municipality of Huntsville.

Prospective Market. If hydro-electric power were available in Huntsville at the present time, contracts aggregating 400 horse power could be obtained at once. With power at a reasonable price, the municipal requirements for street and residential lighting and pumping would soon require 250 horse power. In addition to this, several summer hotels in the vicinity of development would probably be in the market for light and pumping.

Source of Power. The Muskoka River, with its two branches and various tributary streams, forms the most convenient source of power available to the municipality. A considerable number of good sites for power development are located in these waters, of which the more important are South Falls and Trethewey's Falls, on the south branch; Bracebridge Falls, Wilson's Falls and High Falls, on the north branch; and Marsh's Falls, the Ragged Chute and High Falls, on the Oxtongue River, this being the principal tributary of the south branch of the Muskoka River. In addition to the sites above mentioned, an important power possibility is that at the Portage, where development is possible by diversion of water from the Lake of Bays into Peninsula Lake.

Bracebridge Falls has been developed by the town of Bracebridge, which is also about to develop Wilson's Falls, and South Falls is partially developed by the town of Gravenhurst. Of the remaining sites, the following, in order of their importance, could be developed by the municipality of Huntsville: The Portage, High Falls (Muskoka River), Ragged Chute, High Falls (Oxtongue River) Marsh's Falls.

Characteristics of Watershed. The watershed of the south branch of the Muskoka River above the Lake of Bays has an area of about 500 square miles, the watershed of the north branch above High Falls is about 640 square miles and the Oxtongue watershed above the Ragged Chute and High Falls is about 160 square miles. The country embraced by the above areas is rough and well covered by large hardwood timber: this fact, together with the generally steep gradient of the main and tributary streams, provides better facilities for run-off and natural conservation of rainfall than most watersheds of the same order in the older portion of the Province. The small extent of drainage area is, therefore, to a certain extent compensated for by a uniformity of flow which is the natural outcome of favorable watershed characteristics. This was especially noticeable in the case of the Oxtongue River, where the discharge over the Ragged Chute and High Falls seemed considerably greater than would have been ordinarily expected from a watershed of 160 square miles, at the end of August.

Storage Possibilities. The main storage basin of the district is the Lake of Bays on the south branch of the Muskoka River. This lake has an area of about 25 square miles. From records extending over a period of twelve years, the minimum annual precipitation at Huntsville appears to be 28.11 inches. In view of the favorable watershed conditions it should be safe to assume that the run-off amounts to 45 per cent. of the annual precipitation (= 12.7 inches). In a minimum year, therefore, the Lake of Bays watershed will deliver approximately 14 775 millions of cubic feet at Baysville, the outlet of the lake. The capacity of Lake

of Bays per foot rise is approximately 697 millions of cubic feet, so that the run-off of a minimum year would be sufficient to raise the water on Lake of Bays 21 feet. A difference in level of 10 feet between high and low water would provide a continuous discharge of 220 second feet for 365 days. This discharge superimposed upon that due to the non-regulated run-off should make the total minimum discharge from the Lake of Bays something over 300 second-feet.

On the north branch of the Muskoka River are Mary Lake, Fairy Lake and Lake Vernon. These lakes afford good natural facilities for storage, but the large number of summer houses and resorts on the shores and the requirements of navigation would probably do away with the possibility of developing the storage on these lakes to a greater extent than at present. In a measure, the same argument applies to the Lake of Bays, but on account of the much greater area of this lake, a comparatively small fluctuation in the water level would provide storage run-off sufficient to appreciably augment the low-water discharge of the south branch. It is doubtful if the present high-water level of the lake can be raised appreciably, but possibility of lowering the outlet is worth considering, as there would be no interests seriously affected if the water were lowered below the present minimum between the end of October and the first of April.

The permissible variation of water-level on the Lake of Bays is a question which will require considerable investigation before any definite recommendations can be made.

Hollow Lake, Tea Lake and Smoke Lake, all tributary to the Lake of Bays, are also available for storage purposes. These lakes are of comparatively small size, but would be very useful owing to the fact that their development would not be subject to the restrictions which obtain in the case of the Lake of Bays and lakes in the watershed of the north branch.

Power Capacity. The Portage: the development of power is possible at this point by reason of the difference in the elevation between Peninsula Lake and Lake of Bays, which is normally 104 feet. This head, properly developed, would provide 9 horse power continuous 24-hour power at the turbine shaft for every second-foot discharge from Lake of Bays into Peninsula Lake.

The development of this site will require about 3,000 feet of dredging and open cut and 1,900 feet of tunnel, and in view of the large capital expenditure it would seem unwise to design the plant for less than 1,000 horse power capacity. The discharge necessary for this capacity will, therefore, be about 110 second feet.

The water thus drawn from the Lake of Bays would be discharged into the north branch of the Muskoka River and would increase the capacity of the two developments controlled by Bracebridge by about 800 horse power. On the other hand, the capacity of the development controlled by Gravenhurst on the south branch would be permanently reduced by 1,000 horse power under present conditions, by reason of the fact that the diversion of 110 second feet into the north branch would have to be compensated for by a corresponding reduction of the discharge from the lake at Baysville, which is the outlet of the south branch. While the requirements of the town of Gravenhurst do not approach anywhere near the ultimate capacity of the South Falls development, yet any scheme tending to permanently reduce this ultimate capacity would doubtless be considered a just cause for protest by the town of Gravenhurst, the more so as their loss would be a material gain to the municipalities on the north branch of the river. The only possible way to remedy this trouble would be to improve, if possible, the storage facilities of the Lake of Bays, and develop those of the upper lakes to an extent sufficient to add 110 second feet at least to the present minimum discharge from the Lake of Bays.

To determine whether or not this is possible, it will be necessary to make a number of discharge measurements at Baysville and at the outlets of the upper lakes. Further discussion as to the feasibility of this scheme must, therefore, be held over till the above data have been obtained.

The importance of this site to Huntsville, apart from the high head, is due to the fact that the transmission distance, about 10 miles, is much less than that from any other site available to the municipality.

High Falls: This location, situated on the north branch of the river, is, from a topographical standpoint, a very desirable source of power. The available head of 44 feet and the flow is sufficient to develop 1,000 horse power continuous 24-hour power under minimum conditions. This site has the advantage of being fairly accessible, as it is less than 5 miles from Bracebridge and is close to a well-travelled road. On the other hand, the transmission distance to Huntsville will not be less than 20 miles, which fact will have a very material effect upon capital cost and annual charges. The riparian rights at High Falls are privately owned and would have to be acquired by purchase before development would be proceeded with.

Next in order of importance is the Ragged Chute on the Oxtongue. A head of probably 100 feet could be developed at this location, and the flow at the time of inspection was sufficient to develop something like 1,000 horse power under the above head. Whether this flow can be maintained under minimum conditions, either naturally or by artificial means, is a matter for future investigation. The transmission distance to Huntsville is approximately 18 miles, and the great disadvantage of this site is its inaccessibility, which will not only affect capital costs, but will be very disadvantageous from an operating standpoint.

As regards High Falls on the Oxtongue, the ultimate capacity would be about half that of the Ragged Chute and the construction and operating difficulties above mentioned would be, if anything, increased, so that consideration of its availability as a source of power for Huntsville may be eliminated.

The data collected by the First Commission with reference to the upper branches of the Muskoka River are quite insufficient for the present requirements, and the measurements and investigation above mentioned will be required before any definite scheme can be submitted for the consideration of the municipality of Huntsville.

REPORT No. 6.

Moira Storage.

Submitted herewith is a report dealing with the storage possibilities of the Moira watershed, which is intended to supersede the report of December, 1907, on the same subject.

Since the previous report was prepared, surveys of the storage basins have been completed and the actual areas obtained are very much less than the estimated areas, which were based upon local opinion. To offset this to a certain extent, the flood contours developed by the survey show that the depth of the storage run-off can be considerably augmented in the case of the Grimsthorpe Marsh and, to a smaller extent, in Loon Lake. This may necessitate additional dam construction and consequent greater capital expenditure, but this is largely compensated for

owing to the fact that cement is much cheaper and sand can be obtained comparatively close to the sites of dams. The latter fact we were not justified in considering in the previous estimate owing to lack of definite information.

There has been no opportunity as yet to proceed with detailed estimates and designs, and the site at Deer Lake will require further investigation before this can be done. In the meantime, however, the revised storage figures are submitted, and while the capital cost may be somewhat increased, the old figures still give a reasonable indication of the expenditure involved. On account of the much smaller amount of water to be handled, the operating expenses have been reduced, and the interest on investment increased to 5 per cent.

On the whole, therefore, the capital investment may be slightly greater, and the storage capacity will be less than previously estimated, but there seems no doubt that in spite of altered conditions the material benefits to be derived from proposed storage work are sufficient to warrant their construction.

(1) *General.* The Moira River, with its principal tributaries, the Scoutanatta River and Black Creek, takes its rise in the northern portion of Hastings and Lennox and Addington Counties, and flows into Lake Ontario at Belleville, falling about 850 feet in 100 miles. The northern portion of the drainage basin is well mineralized, a few mines being in operation at the present time, while several more could be economically developed if cheap power were available. Owing to large areas of surface rock, and the steep gradient of the river, the run-off is naturally rapid, and this condition has gradually become more pronounced with the clearing of the upper basin by the lumbering interests. Up to the present time, the flow of the river has been regulated by the lumberman, with the result that the river became useless for power purposes for a considerable period each year, owing to the fact that the storage water was all used in the spring for driving purposes. Lumbering operations being now at an end in this district, the object of this study is to determine whether or not the flow of the river can be artificially regulated so as to furnish continuous power in commercial quantities.

(2) *Available Precipitation.* Records of the Weather Bureau at Madoc and Bancroft extending over a period of 14 years indicate that the maximum value of mean annual temperature is about 43 degrees, and the minimum value of mean annual precipitation about 30 inches. Assuming that the most unfavorable conditions for any year would obtain from a combination of the above figures, the evaporation for a season of this kind would be in the neighborhood of 14 inches, leaving 16 inches available for storage. In the following estimates, 15 inches has been taken as a safe value for purposes of calculation.

(3) *Natural Storage Basins.* Following the river up from its mouth, the first natural storage basin encountered is Stoco Lake, near the village of Tweed. A few miles further up stream, above the confluence of the Moira proper with the Scoutanatta and Black Creek, is Madoc Lake, near the village of Madoc. Above Madoc the only natural basin of importance is Wolf Lake. On Partridge Creek, a tributary of the Scoutanatta, is Deer Lake, and Loon Lake is at the headwaters of the Scoutanatta itself. The Grimsthorpe Marsh at the headwaters of Black Creek completes the list. Owing to rather unfavorable topographical conditions and the possibility of conflict with private interests, Madoc and Stoco Lakes have not been considered, and the estimates submitted will deal with the benefit to be derived from, and the cost of, storage works at Deer Lake, Loon Lake and the Grimsthorpe Marsh.

(4) *Assumptions.* The estimates submitted are based on the following assumptions:—

(*a*) That it is not practicable to use Madoc and Stoco Lakes for storage purposes.

(*b*) That in the event of the proposed dams being constructed at least 10 feet of water can be drawn off Loon Lake, Deer Lake and the Grimsthorpe Marsh.

(*c*) That the surveyed areas of the storage basins be given the following values: Loon Lake, 4.6 sq. miles; Grimsthorpe Marsh, 3 sq. miles; and Deer Lake, 1.4 sq. miles.

(*d*) That in view of the fact that the surveyed areas are so much smaller than those used in the previous estimate, the period of non-regulated flow may be increased from seven to eight months.

(*e*) All figures for horse power refer to power developed at the shaft of a good type of waterwheel at 80 per cent. efficiency.

(5) *Storage Capacity and Annual Run-off.*

	Storage.	Run-off.
Loon Lake	1,283 mill. cu. ft.	1,570 mill. cu. ft.
Grimsthorpe	836 " "	1,638 " "
Deer Lake	391 " "	1,395 " "
Bridgewater	1,674 " "	7,876 " "
Tweed	2,510 " "	22,477 " "
Corbyville	2,510 " "	34,848 " "

(6) *Bridgewater.* The storage water available to Bridgewater is 1,674 million cubic feet, and the annual run-off is 7,876 cubic feet, leaving a surplus run-off of 6,202 million cubic feet to be distributed naturally over a period of eight months each year. The available storage water would give a continuous uniform flow of 160 cubic feet per second at Bridgewater for four months. This is equivalent to 14.5 continuous 24-hour horse power per foot of head.

(7) *Tweed.* The storage water available to Tweed, not including Wolf Lake, is 2,510 million cubic feet, and the annual run-off is 22,477 million cubic feet, leaving a non-regulated run-off of 19,967 million cubic feet available for eight months. The storage water would give a continuous uniform flow of 250 cubic feet per second at Tweed for four months. This is equivalent to 22.5 continuous 24-hour horse power per foot of head.

(8) *Corbyville.* The storage water available to Corbyville, not including Wolf Lake, is 2,510 million cubic feet and the annual run-off is 34,848 million cubic feet, leaving a non-regulated run-off of 32,338 million cubic feet available for eight months. The storage water would give a continuous uniform flow of 250 feet per second at Corbyville for four months. This is equivalent to 22.5 continuous 24-hour horse power per foot of head.

(9) *Capital Cost* (subject to revision). The capital cost provides for the construction of three dams; one at Loon Lake with a maximum of 18 feet of water on the sill; one at Grimsthorpe with a maximum of 20 feet of water on the sill; one at Deer Lake with a maximum of 15 feet of water on the sill. The site at Deer Lake is clear, but it will be necessary to remove existing wooden dams at Loon Lake and Grimsthorpe.

The Deer Lake estimate is for a 50 foot dam with concrete sluiceway piers, concrete spillway, and about 200 feet of earth and rip-rap filling. The Loon Lake

dam provides for 80 feet of concrete dam, including sluice, and about 220 feet of wooden wing-dam. The Grimsthorpe dam provides for 70 feet of concrete dam, including sluice, and for the temporary repair and reinforcement of the existing wing-dam.

In addition to the dam above mentioned, it would be good policy to spend a reasonable amount yearly on the maintenance of the lumbering dams in the upper waters. These dams need not be tight, but they should be kept in a condition sufficient to withstand spring floods and release impounded water gradually. This item figures in the capital cost under the head of "lumbermen's privileges," and in the annual charges comes under the head "maintenance of lumbermen's dams."

Loon Lake Dam—		
Dam removal and excavation	$600	
Concrete	4,000	
Crib-dam	3,000	
Auxiliary wing-dams and false-work	2,000	
		$9,600
Grimsthorpe Dam—		
Dam removal and excavation	$600	
Concrete	3,800	
Repairs to existing wing-dam	1,000	
Auxiliary wing-dam and false-work	1,700	
		7,100
Deer Lake Dam—		
Clearing and excavation	$400	
Earth filling	2,200	
Concrete	2,000	
False-work	600	
		5,200
Total		$21,900
Engineering and contingencies, 10%		2,190
Interest during construction, 2½%		502
		$24,592
Lumbermen's privileges (say)		10,000
Total capital investment		$35,000

(10) *Administration and Annual Charges.* Concerning the administration of such a system as is outlined in this report, it would seem advisable to vest the control in a representative commission composed of power users along the river. With the co-operation and assistance of a superintendent, the Commission would control and regulate the flow of the river in such a way as to properly serve the interests of the power users in general. This would include, primarily, operating the main storage dams so as to give as near an approximation as possible to uniform flow throughout the year; also the issuing of permits for, and supervision of, new dam construction, and alterations or additions to dams now existing; also the imposing of necessary restrictions as to the use of flash-boards, and, in case of emergency, the temporary imposition of a time limit for the use of water; finally, there would be the levying of water rentals to meet capital charges, and the collection of revenue.

Under annual charges should be included the following items:—

Maintenance of main dams, 2 per cent.	$450
" lumberman's dams (say)	600
Interest on $35,000 at 5 per cent.	1,750
Operation and administration	3,000
Total annual charges	$5,800
Thus, yearly revenue should be approximately	$6,000

(11) *Power Capacity.* For purposes of an approximate estimate of the power capacity of the river, it will be divided into sections over which the minimum flow in the dry season is assumed uniform, as contained in sections 5, 6, 7 and 8 of this report. The power capacity is calculated from the total drop over these sections.

Section.	Drop. Ft.	Min. Flow. Sec. ft.	Min. 24-hr. Power
Loon Lake to Flinton	190	125	2,160
Flinton to Madoc Lake	380	160	5,530
Grimsthorpe to Madoc Lake	500	81	3,700
Madoc Lake to Lake Ontario	265	250	6,030
Total capacity in min. 24-hr. power, 17,620 H.P.			

Assuming one-third of this quantity to be commercially available, there would be 6,000 horse power capable of development, against which there will be $6,000 in annual charges (Sec. 10). The cost per horse power per year on this basis would then be in the neighborhood of $1.00, but as the annual charges are to large extent constant, the cost per horse power for storage will vary inversely as the power developed.

It must be noted that as the estimate does not include a dam at Wolf Lake, no account is taken of the possible low-water discharge of the upper branch of the Moira. This would tend to increase the figures given above.

(12) *Supplementary.* It is evident that the storage basins on the headwaters can only be used to sustain a uniform flow, as their location is too remote to supply the peak-load or emergency demands of power users on the lower river. From the mouth of the river up as far as Corbyville, the gradient of the river is so steep that the dams upon it have comparatively little daily storage capacity. In view of this fact, it may become necessary to supply water for peak-load energy from a storage basin sufficiently near to the various points of consumption to insure prompt regulation. A dam at Foxboro raising the 4 or 5 miles of dead water up to Plainfield about four feet would appear to answer all requirements. This dam could be constructed for a very reasonable figure if it was found to be necessary. The chief item of expense would probably be land damages, concerning which no information is at hand.

5.—GENERAL.

Report on Trip of Engineers to Europe.

The object of this trip was:—

1. The study of methods and practices of European countries in connection with the building and equipment of modern high tension power transmission lines, more especially the following subjects, being directly and intimately associated with the Commission's power distribution system and in which great progress has been made within the last few years.

(1) Protecting apparatus and systems, high tension fuses, lightning arresters, condenser for lightning dicharges and grounding systems of high tension lines.

(2) Insulators, with view of opening negotiations with one of the firms for supplying the Commission with balance of high tension insulators.
(3) Cables.
(4) Methods of treating and preserving wood poles.
(5) Hydraulic accumulator scheme.
(6) Some of the most modern and up-to-date high tension tower transmission lines on the continent.
(7) Thury System of D.C. high tension transmission systems at Lyon, France, and plants of Thury, at Geneva, Switzerland.

2. To study the conditions abroad pertaining to the general use of electric power, appliances and machinery, which eventually could be introduced into Canada to further the general adoption of electric power in this country.

(1) Motors and generators.
(2) Incandescent lamps.
(3) Quartzlamps.
(4) Heating apparatus.
(5) Apparatus for the purification of drinking water by means of ozone.
(6) Apparatus for the manufacture of fertilizer by burning nitrogen of air.
(7) Electric furnaces for the production of metals.
(8) Street lighting by means of incandescent lamps.
(9) Apparatus and appliances used by the farmers.
(10) Conduits, paper insulated tubes, etc., for installation work.

Toronto, August 20th, 1909.

Hon. Adam Beck,

Chairman, Hydro-Electric Power Commission of Ontario.

Dear Sir,—With reference to my recent visit abroad, I beg to submit the accompanying reports dealing with the various subjects investigated. My assistant, Mr. Mansbendel, was sent to Europe several weeks ahead of me in order to prepare the ground, gather the necessary material, and make appointments with the different concerns.

Owing to the lack of time, only a part of our original programme, as outlined to you in my letter of April 22nd, could be followed. The most important subjects, however, were fully investigated and detailed reports of same are attached to this letter.

List of Subjects Investigated.

Insulators	Special report.
Incandescent Lamps	" "
25 Cycle Arcs and Quartzlamps	" "
Lightning Protection	" "
Water Purification with Ozone	" "
Electric House Heating	See Later.
Transformer Cables and Condenser Bushing,	" "
Hydraulic Accumulator Scheme	" "
Thury System of D.C. High Tension Power Transmission	" "
Option for Aluminum Cable	" "

Re Insulators. Upon my arrival in Europe, I took up the question of insulators immediately. I found that though we had sent out specifications to the various firms concerned early in April, they were unprepared to make us any proposition, as the manufacture of their samples was not far enough advanced. Each of the five firms visited was laboring to improve on the C.E. type of Suspension Insulator, always retaining the link feature as the most vital part. I did not find any insulator which was different from, or better than, those tested here at Niagara, and which could possibly enter into serious consideration, in spite of the great number of variations which they had developed. Our suggestion regarding the furnishing of insulators according to our accepted design (O.B. Co. insulator) had been taken up at once, and samples were being made, but the testing of same had to be postponed. From the results of these tests and from what I saw at these factories, it is my opinion that the porcelain manufactured abroad is in most cases fully as good, if not better, than the American porcelain, both electrically and mechanically. On the other hand, I found that the foreign prices were with few exceptions rather high. The high duty and transportation charges offset almost entirely any gain which could be derived from the cheaper labor prevailing in those countries.

The insulators proposed by the Watson, Jack & Co., of Montreal, had been improved in the meantime so as to meet our specifications, and from a technical standpoint there is at present no reason why they could not be used on our lines.

The general impression gained from visits to the different insulator factories is a very favorable one. There is nothing that the manufacturers cannot furnish in the line of porcelain, independent of size, design and quantity. The facilities for manufacturing and the location of raw material are exceptionally favorable, and the reputation of these houses abroad leaves nothing to be desired. In the case that tests with insulators should be continued here, the different firms are willing to send us sample insulators free of cost, exclusive of duty.

Re Incandescent Lamps. Several firms were visited but satisfactory arrangements for the importation of metal filament lamps into Canada could only be made with the Siemens Schuckert Works, in Berlin. A detailed special report dealing with the technical features of this lamp follows later.

Re 25 Cycle Arcs and Porcelain. The following firms were visited:—

Siemens Schuckert Works, Berlin,
Koerting & Matthiesen, Leipzig,
Beck Arc Lamp Co., Berlin,

and a good but rather expensive low frequency lamp was discovered. The usual practice abroad is to use flaming arcs which are highly developed. Data and valuable information concerning flaming arcs were obtained from these different places.

Re Lightning Protection. The following places were visited:—

Siemens Schuckert Laboratories, Berlin.
Stations and Sub-stations at Moosbach, near Munich.
Stations and Sub-stations at Heimbach, Urftthalsperre, near Cologne.

Owing to lack of time several other important places of interest could not be visited. The investigation of this subject has given us particular valuable information. Over 700 installations in all parts of the world are provided with this system of protection and the results obtained in many years of service, during the most severe storms, have, without exception, been the very best. Technical details and description of this system are contained in attached special report. Two estimates for the equipment of our stations with this protective system are being prepared.

Re Water Purification by means of Ozone. Aside from the great merits of this system as an absolutely safe and certain method for purifying drinking water in large quantities, it is a valuable adjunct to any municipal plant, inasmuch as it requires power and that this power can be shut off during the peak-load period. The system as developed by the Siemens Schuckert Works, Berlin, was fully investigated and detailed report is attached to this letter.

Re Electric House Heating. Electric house heating abroad is as a rule considered a very expensive luxury owing to the high rates for current. There exist but a few installations in factories and churches in Switzerland and Italy, where water power is available. Electric cooking, however, is more generally used in spite of the high current prices, on account of its simplicity, its convenience and flexibility.

Electric cooking has proved to be cheaper than gas at 75 cents a thousand feet as long as the price for 1 kilowatt hour does not exceed 4.5 cents.

In spite of the restricted use of electric house heating apparatus, the German, Swiss and Austrian electric stove factories have developed a remarkable industry, mostly to supply the demand abroad. There are in use several distinct systems of heating—stove heating, air heating, and recently an English house has developed a system of electric radiator in which oil is heated electrically.

The tendency of late is to build large tile stoves of large heat storage capacity which, when fully heated, can be disconnected from the power during the peak-load period. This feature is a very recommendable one and any system of heating embodying this principle of heat storage could be introduced to users of Commission's current to good advantage. Valuable data in the form of figures, curves and text books were obtained dealing with the general conditions of cooking in European countries.

With regard to motors, generators and transformers, the following houses were visited:—

Siemens Schuckert Works, Berlin and Nuremberg.
Bergman Co., Berlin.

Both are important firms engaged in the manufacture of large generators, motors and transformers. The Nuremberg factory takes care of the manufacture of all transformers and standard apparatus, whereas the Berlin works are engaged in building special motors and generators of large capacity. The S.S.W. transformers show an exceptionally good mechanical design, providing against all possible deformation of the vital parts due to short circuits or other troubles on the line. They build air and oil cooled transformers, the latter having specially constructed steel tanks of large cooling surface. The S.S.W. are also building explosion-proof motors and generators for mines, etc., and have an ingenious plant to test the safety of these apparatus under actual conditions.

Re Cables. The large cable works of the S.S.W., at Nonnendann, Berlin, where power and telephone cables are manufactured, were visited. Their equipment for this class of work is the most up-to-date of its kind. The cables are tested with a 400,000 volt transformer provided with condenser bushings, which has been in constant use for over six years, giving excellent satisfaction. Cables for 150,000 volt as manufactured by the S.S.W. have been in successful use for over two years.

Re Hydraulic Accumulator Scheme. With regard to hydraulic accumulator scheme, we learned from the S.S.W. that such schemes were quite frequently used

abroad, and that they had built several larger plants in the northern part of Italy. At the time of our visit they showed us plans of a new accumulator scheme they were building, with a capacity of three times 4,000 horse power.

We also visited the Societe de L'Industrie Electrique, at Geneva, Switzerland, which exploits the Thury system of direct current, high tension power transmission. There exists at the present time but one installation of this kind in France, between Moutier and Lyon, which could not be visited on account of lack of time. The system, however, impresses me as impracticable and too complicated, each unit being a rotary machine requiring attendance and care. The saving eventually effected by the using of D.C. over A.C., since twice the voltage can be used for the same insulation, is greatly offset by the extreme complications of the high cost of the station and sub-station outlay, regulation and extra insulation. The D.C. system is at the present unable to compete with the A.C. system.

With regard to our endeavor to secure an option on 250 tons of aluminum from the S.S.W., I was informed that owing to the contemplated consolidation of the different aluminum manufacturers they were unable to obtain a quotation for our purposes.

I beg to draw your attention to the attached reports dealing more intimately with the technical points of the subjects.

Yours very truly,

Chief Engineer.

Toronto, August, 1909.

REPORT ON INVESTIGATION OF HIGH TENSION INSULATORS.

The firms which were asked to submit prices and details of high tension insulators and low tension insulators were:—

Porzellanfabrik Hermsdorf S. A.
Porzellanfabrik Hentschel & Muller, Meuselwitz.
Rosenthal, Selb, Bavaria.
Kaolin, Industrie Gesellschaft, Merkelsgrün, Austria.
Schomberg & Sons, Bautzen, Saxony.

Specifications for our high tension insulators were sent to each of these firms early in April. Upon my arrival in Europe and visit to these houses, I found that none had any design to offer which would offer greater advantages than our own types. Hermsdorf was more advanced in the manufacture of a type of high tension insulators connecting up a string of their usual delta type pin insulator, as submitted to us early in February. Numerous attempts had been made by all houses to improve on the G.E. type of insulators, always retaining the interlocking feature, but in spite of the changes of mere technical nature, which were proposed and tried, no satisfactory arrangement had been found. So far as it is known, this (G.E.) type of insulator has not been used in European countries. The factories of these firms were all well equipped, some larger, some a little less spacious, but as a whole they were all larger than any American factory of this class. The materials used are Swedish and Norwegian feldspar and flint, some English clay, and mostly kaolin, which is found abundantly in those regions in which the factories were located.

The process of mixing the clay is the same in principle as the one used in the States, except that after the clay mass has been filtered it is stored away in vaults until it begins to smell, presumably on account of a process of fermentation of the mass. This happens after a period of several weeks. The forms are worked out of the plastic material in pretty much the same way as in America. In some cases a rough form is gotten up, which is dried, and when it has reached a nearly dry consistency, it is worked in the lathe like a piece of wood. In this manner pieces of complicated designs can be turned out much better than by moulding wet. Then, too, single pieces are often stuck or glued together by means of liquid mass, and no difficulty is experienced in piecing up the most complicated form. The piece is then dried and fired in the upper part of the kiln, at a temperature of somewhere in the neighborhood of 700 degrees C.; after this firing, the pieces, having the consistency of chalk, are dipped into the glazing solution and fired a second time in the lower part of the kiln at high temperature (1,700 degrees C.). The kilns are all coal fired and have three stages extending through two floors. The lower stage is the hard fire room (1,700 degrees C.), the stage on the floor above the glow fire (700 degrees C.), and the top is reversed for drying the forms outside of the kiln, to utilize all of the available heat. This system is common to all factories in Europe, and it is claimed that these two consecutive firings, to which the porcelain is subjected, gives it its superiority in mechanical and electrical strength. The test result obtained at the factories under consideration, both with their own designs and with our section, can be drawn together as follows:—

Hermsdorf seems to have overcome the faults adhering to their original samples. The mechanical pull is high (somewhere around 10,000 lbs.) and the puncture voltage of the insulator from 120 to 160 kilovolts under oil. Electrically the insulator has not been changed, the fittings would eventually be made according to our own specifications. From all other designs submitted, none show any advantage over our sample, in fact a parallel test in steam showed a marked better behavior of our insulator over all other samples of their design under test. Insulators with tin roofs show under test a considerable better behavior, but this result should be viewed with the utmost care, and no definite conclusion should be drawn before further extensive tests have been made. The samples Hermsdorf made in conformity to our own section do not show higher electrical test results, and mechanical tests are the same as on their standard make, as the same shape head is used. Comparing prices it will be found that they are more expensive than our American make, and consequently should fall out of consideration.

Hentschel & Muller, Meuselwitz. Have had no design of their own. They limited themselves by making a number of test samples according to our design, which gave very favorable results. Electrically, porcelain is fully as good as the best porcelain in Europe. Mechanical tests performed showed a pull of 10,000 lbs. and more before the porcelain broke. Cement in no case gave way. Prices are cheaper than any of the other houses, but whether they can compete with Ohio Brass prices is questionable, on account of duty and freight.

Rosenthal, Selb. Rosenthal insulators are made of probably the best but also of the most expensive porcelain. Has a very good reputation among electrical firms. Rosenthal had a type of insulator which he showed me, but which was unsuitable for our use as it then was made. Proposed to him several changes which he afterwards made. Tests on this insulator showed, however, no favorable results. Strong leakage under rain at low voltage (50 cycles). It is a question whether behavior would be better at 25 cycles. Mechanical pull of these insulators is high (12,500

lbs.). Our own type, even if at equal qualities electrically or mechanically, is too expensive to be considered. Advantages, if any, are bought at too high a price.

Kaolin Industrie Ges. Merkelsgrün. Their own design, which they got up after having seen our model, is a combination of ours and an ordinary petticoat pin insulator. Though it seems that five sections would eventually meet our requirements, the petticoat feature does not seem advantageous for various reasons. Tests on our sample showed no improvement over our model. Mechanical tests were failures, owing to fast work, unset cement, and faults in construction. Porcelain seems to me to be of poorer quality and make as body of other firms.

Schomburg. Had no original design of their own. Our model, made by them, even at our standard of quality would be out of consideration on account of high price. No tests were made with these insulators.

Samples for our own use for testing purposes can be obtained from all the different manufacturers, should we wish to continue our research at home. Follow a list of prices for both original types and our models made by European factories:—

PRICES FOR HIGH TENSION INSULATORS.

DESIGN.

	Ours.				Theirs.			
	F.O.B. Toronto.		F.O.B. Hamburg.		F.O.B. Toronto.		F.O.B. Hamburg.	
	Sect. $ c.	Comp. $ c.	Sect. $ c.	Comp. $ c.	Sect. $ c.	Comp. $ c.	Sect. $ c.	Comp. $ c.
Hermsdorf	1 22	9 76	8 25	6 60	1 64	8 20	1 15	5 75
H. & Muller	95	7 60	51	4 08	.....	.....	.....	.....
Rosenthal	1 96	15 68	1 27 F.O.B.	10 16 Factory.	2 60	13 00	1 72 F.O.B.	6 50 Factory.
Kaolin Industrie	1 48	11 84	.....	.....	1 35	6 75	.....	.....
Schomburg	1 95	15 60	.....	.....	.....	.....	.....	.....

LIST OF PRICES FOR LOW TENSION INSULATORS, LIME INSULATORS WITHOUT PINS.

	F.O.B. Hamburg.	F.O.B. Toronto, including duty.
Hermsdorf	.....	35c.
H. & Muller	20, 29, 38 and 46c.	.....
Rosenthal	.....	38c.
Kaolin	.....	.....
Schomburg	.....	47c

A very ingenious device used to indicate the breaking of a high tension insulator was also inspected. This device, a simple red-colored cap made of thin celluloid, is fastened over the head of the high tension pin insulators by means of two clips. The breaking of an insulator is naturally followed by a flashover setting fire to the celluloid cap and destroying the same immediately. The missing of the red cap is readily noticed by the patrolmen, and the insulator can at once be replaced. These caps are in use over the complete transmission system at Strassburg, Alsace, representing the most extensive system of distribution in Europe, and their use on these lines has resulted in a considerable saving over the old method of locating a broken insulator by eyesight.

Toronto, August, 1909.

Report on Investigation of Metal Filament Lamps.

The metal filament lamps can be divided into two distinct groups. One group contains the tantalum group as manufactured by the S.S.W., the other group contains all the other lamps like tungsten, osram, colloid, etc., which are practically all tungsten lamps with different names. The main difference between the lamps of these two groups lies in the fact that the tantalum lamp has a ductile filament of pure metallic tantalum, whereas the filament of all the other lamps have a very fragile and brittle filament made of tungsten, which renders the lamp exceedingly sensitive to breakage. This breakage is partly offset by a lower watt consumption as compared with a tantalum lamp, the latter consuming 1.5 to 1.6 watts per candle power, whereas the tungsten lamp consumes but 1.1 to 1.2 watts per candle power. (An ordinary carbon lamp consumes 3.5 watts per candle power.)

In the face of the higher watt consumption the tantalum lamp has some advantages which make it the more economical lamp in the long run. As mentioned before, the lamp is much stronger mechanically, making packing and shipping an easy matter. Then the tantalum lamp will stand all sorts of current fluctuations up to 100 per cent., without danger of burning out, while the tungsten lamps are all more or less sensitive to the slightest voltage variation.

The factory of the S. S. W. in which the tantalum lamps are manufactured was visited. The most striking feature about these works was the great quantity of special automatic machinery used for making these lamps. The number of hands employed is nevertheless very great as certain operations, like the threading of the filament around the spider, can only be made by hand. The daily production of these works is 75,000 lamps outside of the carbon filament lamps. Five million metal filament lamps are kept in stock. Thirty miles of tantalum wires are drawn every day, the average lamp containing one foot of it.

Report on Investigation of 25 Cycle Arc Lamps and Quartz Lamps.

Toronto, August, 1909.

The standard frequency in European countries being 50 cycles per second, no great difficulties are experienced with the illumination by means of ordinary arcs, either enclosed or open. With the growing electrification of railroads, however, where 25 cycles are used, the demand for a low frequency lamp has increased very rapidly, and the problem has so far been solved in two ways.

The first and more common way is to use a flaming arc, which as far as the light is concerned gives satisfactory results. Owing to the relatively large volume of incandescent gases, the illumination is nearly steady, and no disturbing effect due to low frequency is experienced, as long as there are no moving bodies around. A pure carbon light is practically excluded, since the flicker at 25 cycles would be very disagreeable to the eye.

A second way of illuminating with current of low frequency has been developed by the S. S. W., Berlin. This firm uses a system of double lamp in one frame, one lamp being fed by a current which is lagging 90° in phase behind the current of the other lamp. Thus the illumination, which is the sum of the illumi-

nation from the two individual lamps, is practically constant and approaches more than anything else ever tried the illumination with direct current.

The cost of the lamp is necessarily high, being a double lamp, and the installation requires additional apparatus, like choke coils and condensers, and a double line along the whole circuit. Where, however, an absolutely steady light is needed, this lamp is unquestionably the best one on the market.

We visited several large manufactories: The S. S. W. lamp factory, the Koerting & Matthiesen, who are manufacturers of the Excello lamp, which is being sold in the States, the Beck Flaming Arc Company, who also propose their flaming arc as the correct solution of the 25 cycle illuminating problem.

Both the S. S. W. and Koerting people make first-class flaming arc lamps, which can be safely recommended.

With regard to Quartzlamp, which is an improved mercury vapor lamp, using a quartz tube instead of one made of glass, we found that though the current consumption of these lamps is very low (½ watt per candle power), the maintenance of the lamp is very high. The tubes have a life of 1,000 hours as a rule and cost new $5, the renewal costing $3. The lamp can be used on D. C. only, and has a further disadvantage of giving the objectionable greenish light containing no red rays. At the present stage of development this lamp is not fit for use on an A. C. system.

Report on Lightning and Over-Potential Protective System of the Siemans Schuckert Works (S. S. W.), Berlin.

Toronto, August, 1909.

The lightning and over-potential system for high tension transmission lines developed by the S. S. W. is based upon very exhaustive scientific research, and is the result of practical experience gained on over 700 installations equipped with this system. Briefly stated, the protective system provides against any and all disturbances in the line which can possibly occur through internal or external causes. Under internal causes may be classified the opening or closing of switches, whereas any disturbance which is induced in the line by lightning discharges or the slow accumulation of static charges upon the line are due to external causes. No system, however, can prevent the lightning from striking the line. In this case a few insulators may be expected to break, but the stations themselves when properly protected will experience no trouble whatever.

The slow accumulation of static charge upon a well insulated network of transmission line is made ineffective by conducting it to earth through a grounding choke coil of very high resistance and inductance. These values are chosen so as to allow the static to flow steadily (like direct current) to earth, without undue loss of current from the transmission line. It is therefore impossible for the line voltage to rise above normal voltage, due to such static accumulation.

The more important disturbances and heavy charges induced upon the line by the discharge of lightning are taken care of by the electrolytic lightning arresters, which form part of the equipment as at present contracted for. These charges are prevented from doing damage inside of the station by placing substantial and efficient air choke coils at the terminals of each transformer. According to the views of the S. S. W.'s engineers, the so-called hour-glass spiral choke coils, as

employed by the G. E. Company, are absolutely of no value whatever. The inductance of these spirals is so slight that it would have effect upon nothing else but very high frequency surges, and the energy of those surges is infinitely small, and readily absorbed by the large capacity of the line, whereas the dangerous low frequency surges which represent a considerable amount of energy are allowed to pass freely through these coils into the transformers. These heavy charges, when properly choked at the transformer, find an outlet through the horngap and the electrolytic cells to earth.

The less heavy charges, which would normally not discharge through the electrolytic cells, are taken care of by the so-called fine protection, which is installed at some points along the line in conjunction with the electrolytic arresters. This fine protection consists of a horngap in series with a high resistance connected to ground. Thus the energy represented by the charge is absorbed through the resistance, and can under no circumstances surge back into the line, as would be the case with a dead short ground connection between horngap and ground.

It is a well-known fact that lightning discharges, or the opening of switches will sometimes send, dangerous surges along the line, the frequency of which is dependent of the line constants, lengths, heights from the ground, etc. The frequency of a surge can also be complex or a combination of different frequencies, for instance, the fundamental wave with superimposed harmonics. In order to take care of any such surges of different frequencies the S. S. W. employ a system of step choke coils in connection with horngaps and resistances, the choke coil being placed in the out or in coming feeders respectively. The step coil has usually five taps connected to as many horngaps, and these in turn through resistances to ground.

The combination of these different types of protective apparatus as arranged and outlined in the S. S. W.'s estimate either for ungrounded or grounded neutral constitutes a protection which has proven its merits and infallibility in over 700 installations built by this firm. Several stations and sub-stations equipped with this system of protection were visited: Moosbach, located on the outskirts of Munich, in Bavaria; and Heimbach, the famous Urftthalsperre, near Cologne, one of the largest hydro-electric plants of its kind in Europe. Personal investigation of the stations and sub-stations and interrogation of the engineers in charge gave us the evidence that the system worked to their entire satisfaction, having never given the slightest cause for complaint. The step choke coil system for instance, worked so perfectly that the attendants at the station could invariably tell the exact location of a broken insulator from the operation of a certain horn arrester. During lightning storms troubles which could have been due to these were entirely unknown in these stations.

The S. S. W. engineers demonstrated to me through a series of experiments made at their laboratories the fundamental principles upon which they had developed their protective system. The superiority of the horn arrester over the roller arresters was conclusively shown by a classical experiment. A very ingenious lightning arrester for low voltage lines was also shown under operation, as well as a step choke coil with its two sets of horn arresters.

Conclusion.

Substantial and efficient choke coils at the end of the line are absolutely necessary for the protection of the transformers. The protection of the lines and apparatus through electrolytic arresters alone is not sufficient because these arresters

are sensitive to abnormally excessive disturbances only. An additional protection along the lines proposed by the S. S. W. is strongly recommended. If this system is applied to our stations and lines, it is my belief that they have received the best known protection.

Report on Investigation of Electric Water Purification by Means of Ozone.

Toronto, August, 1909.

The system of purifying drinking water electrically by means of ozone as developed by the Siemens Schuckert Works, Berlin, has been in practical use for over eight years in two stations, namely in Paderborn and Wiesbaden, Germany, giving excellent results. Curiously enough, the water used for drinking purposes in Germany especially, is naturally very pure, making the use of any purification system illusory, though the system has been developed and brought to its present high standing by German firms. Wherever the water contains bacteria, which are a danger to the health, it must be purified, and in every case where cheap water power is available the ozone plant will have decided advantages over ordinary filtration plants for the following reasons:—

A filtration plant which uses large sand filtration beds is a source of constant trouble and requires eternal vigilance. The slow working sand filter retains but the solid matter and is wholly ineffective in retaining those elements which are of danger to the health. Since all the dirt and filth is retained in the form of a layer on the top of the sand beds all the water that is subsequently passed through the filter must pass through this film, and it has been shown again and again that those films are the best breeding beds for bacteria. If, through frost or other causes a single bed is cracked, the water is allowed to pass freely through this opening, often for a long time before the trouble is discovered. Furthermore, the plant for a large city requires very much space; maintenance and operating expenses are high, and worst of all the results obtained are doubtful at their best.

The purification of the water by means of ozone is preceded by a forced filtration through a special rapid filter of small dimensions, in order to eliminate all solid matter. After this filtration the water is brought into intimate contact with the electrically generated ozone, which is air containing a surplus of very active oxygen. This oxygen burns up all organic matter (bacteria) which is contained in the water, and a surplus of ozone is spontaneously turned into air and partly kept absorbed in the water. The whole equipment of such a plant is very simple and requires comparatively little space. The current consumption for a town of the size of Toronto would roughly amount to 500 horse power for the purification of the total water supply used.

The very exacting German authorities, after a series of most severe tests with water treated by ozone have pronounced their entire satisfaction with regard to the obtained results. The water is being freed from any bacteria which could possibly endanger the health, and from any inherent bad taste, and contains no trace of any odor or taste that would be due to the treatment. The S. S. W. have contracts on hand to furnish and erect ozone plants in the cities of Paris, France, and St. Petersburg, Russia. Paris especially is known for using the very bad Seine River water, which hitherto could not be purified by any of the commonly used filtration methods.

A point of great importance in connection with an ozone plant outside of the water purification qualities is the fact that the plant consumes power, and that this power can be shut off during the peak-load period.

The S. S. W. have also developed a line of portable field outfits for military use, which have been doing good service in various countries, especially during the Russian-Japanese war.

Specific data of cost and details of system are contained in several reports which were handed to us by the engineer of the S. S. W.

During the year 1909 substantial progress has been made towards the final fulfilment of the work which your Commissioners have been entrusted with. A number of important tenders such as insulators, interswitching and transformer station equipment, etc., have been finally consummated, particulars of which will be found in the Engineer's report.

A great deal of time was taken up in numerous and lengthy negotiations between the Commission, City of Port Arthur and the Kaministiquia Power Company. Contract was finally entered into as follows:—

THIS AGREEMENT, dated the Ninth Day of September, 1909,

BETWEEN KAMINISTIQUIA LIGHT, HEAT & POWER COMPANY, LIMITED, hereinafter called the Company, Party of the First Part, and HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the Commission, Party of the Second Part,

WITNESSETH: That the parties covenant, promise and agree each with the other as follows:—

1. The Company hereby agrees:—

(a) At the expiration of ninety days' notice in writing from the Commission to the Company, to deliver 1,100 horse power or more of electric power to the Commission. Said notice shall be given not later than 31st January, 1910.

(b) At the expiration of ninety days' notice, which may be given from time to time during the continuance of this agreement, to deliver from time to time to the Commission in blocks of 100 horse power each, additional electric power until the total amount so delivered shall amount to 10,000 horse power.

2. The Company hereby agrees to deliver, and the Commission agrees to purchase and pay for the said several quantities of electric power on the terms and conditions of this agreement.

3. The Commission agrees:—

(a) To use all diligence by every means in its power to procure such a demand from the municipalities, corporations, companies or persons for the power dealt with by this agreement, so that at as early a date as possible the Commission will be in a position to give the first notice above referred to to the Company for the supply of power in question, and if notwithstanding the exercise of all such reasonable diligence the Commission is not able on or before the 31st January, 1910, to give such notice, then the Company shall be at liberty to determine the agreement and it shall thereupon be no longer binding upon the parties hereto.

(b) To take power exclusively from the Company up to the said 10,000 horse power, within a radius of forty miles of the Power House of this Company.

(c) To pay to the Company for such power so delivered under the terms and conditions of this agreement at the following rates per horse power per annum:—

Seventeen dollars up to 2,000 horse power, then for all $16 up to 4,000 horse power, then for all $15 up to 6,000 horse power, then for all $14 up to

10,000 horse power or more. If after the Commission has ordered 5,000 horse power, a further order is given and the Company has no power beyond 5,000 horse power available, the Commission shall release the Company from all covenants to furnish power over the said 5,000 horse power, or procure the right for the Company to develop the water power at Silver Falls, under the control of the Commission at the usual annual rental, and if the said water power is developed by the Company, it shall take over the dam, constructed by the Government at Dog Lake, if then in existence, at cost, but without interest thereon. The power shall be paid for monthly in gold coin of the present standard of weight and fineness, in twelve amounts in each year at the office of the Company at Fort William, Ontario, and bills shall be rendered by the Company on the first and paid by the Commission on or before the fifteenth of each month.

4. The Commission shall pay for nine-tenths of the power ordered by the Commission and held in reserve for it as herein provided, whether it takes the same or not.

5. When the greatest amount of power taken for fifteen consecutive minutes during any month shall exceed nine-tenths of the amount ordered by the Commission held in reserve, then the Commission shall pay for this greatest amount during that entire month.

6. The points of delivery shall not be more than two miles from the present high tension transmission lines of the Company. The Company shall not be required to supply less than 400 horse power at any such point. The power shall be measured at transformer stations of the Commission. The Commission shall transmit said power over double circuit steel towers, or over other lines similar to the present transmission lines of the Company.

7. For instantaneous fluctuations that may occur from some monetary abnormal condition, the Company shall allow the Commission to take ten per cent. more than the amount ordered. If the Commission takes more than the amount of power so ordered and held in reserve for it for fifteen consecutive minutes, the Commission shall pay thereafter for an additional block of 100 horse power, and thereafter the Company shall, without notice, supply the said block of power as if it had been ordered and held in reserve by the Commission pursuant to paragraph 1 (b).

8. This agreement shall remain in force for ten years from the date of the expiration of the said 90 days' notice. The Commission may, at its option, continue this agreement for one, two or three further consecutive terms of ten years each by giving notice in writing of its intention to continue this agreement for the second term of ten years, at least three years before the expiration of the first term of ten years, and if pursuant to such notice this agreement is continued, by giving notice of its intention to continue this agreement for the third period of ten years, at least three years before the expiration of the second term of ten years, and if pursuant to such last mentioned notice this agreement is continued by giving notice of its intention to continue this agreement for the fourth term of ten years at least three years before the expiration of the third term of ten years.

9. The electric power herein contracted for shall be three phase, alternating, commercially continuous twenty-four hour power every day of the year, except as provided in paragraph 17 hereof.

10. It is agreed that maintenance by the Company of approximately the agreed voltage at approximately the agreed frequency at the said point of delivery shall constitute the delivery of all power involved herein and the fulfilment of all operating obligations hereunder; and that when voltage and frequency are so maintained, the amount of the power, its fluctuations, load factor, power factor, distri-

bution as to phases, and all other electric characteristics and qualities are under the sole control of the Commission, its agents, customers, apparatus, appliances and circuit.

11. The several blocks of power herein provided for shall be the amounts which the Company shall from time to time hold in reserve upon the order of the Commission and the Commission shall not at any time take more than the amount so ordered and held in reserve for it.

12. The Commission shall so take power that the kilovolt amperes so taken shall not at any time exceed by more than ten per cent. the kilowatts held in reserve for it and this provision shall apply proportionately to each circuit and phase. If after ten days' notice from the Company to the Secretary of the Commission and to the Clerk of any Municipality under contract for a supply of said power from the Commission, the kilovolt amperes exceed more than 10 per cent. the kilowatts held in reserve for it, then the Commission shall pay for such excess kilovolt amperes as true power, but only while such excess continues.

13. The Company shall at all times use first-class, modern, standard, commercial, hydro-electric power apparatus and plant, and the power shall be delivered at approximately 22,000 volts and at approximately 60 cycles per second. The Company shall use first-class, modern, standard, regulating apparatus and all due skill and diligence to maintain the power at such voltage and frequency. The Commission shall provide transformers with taps to receive power at from 22,000 volts to 25,000 volts at points of delivery as may be required.

14. The Commission and its customers shall select and use transformers and all apparatus most suitable to receive the electric power produced by the apparatus of the Company, and the Commission's transmitting, transforming, translating, and all other apparatus and devices upon its circuits when receiving power from the Company shall be of modern, standard design and construction, and shall be operated and maintained with special reference to securing the highest efficiency and most perfect operation, not only of its own, but also of the apparatus of the Company when receiving power from the Company; and the Commission shall install, and equip all circuits with such approved protective devices as are in commercial use and operate its circuits in such a manner as will to the then greatest extent protect the apparatus and circuits of the Company from damage and interruption by lightning, short-circuiting, or otherwise. After the happenings of any of the events provided for in paragraphs 17 and 22 hereof, power shall be delivered first to the municipalities pro rata, first for waterworks service, secondly for lighting, thirdly for street railway service, after which power shall be delivered pro rata to the remaining customers of the Power Company. The power herein provided for shall be measured by curve-drawing meters. The meters shall be subject to test as to accuracy by either party hereto and shall be furnished by and installed by the Company in the transformer station of the Commission, and the Commission shall have the right to install instruments for checking the records made by the aforesaid instruments and the Commission will provide suitable space for the Company's instruments.

15. The engineers of the Commission or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Company and take records at all reasonable hours.

16. The Company shall have the like right to inspect the apparatus, plant and

property of the Commission, and of the Municipalities, Companies and persons who are using power supplied by it through or to the Commission, and take records at all reasonable hours.

17. In case the Company shall at any time or times be prevented from delivering said power, or any part thereof, or in case the Commission shall at any time be prevented from taking said power, or any part thereof, by ice, sleet, and wind storms, shortage of water, strike, lockout, riot, fire, invasion, explosion, act of God or the King's enemies, or any other cause reasonably beyond their control, then the Company shall not be bound to deliver such power during such time and the Commission shall not be bound to pay for such power during such time, but as soon as the cause of such interruption is removed, the Company shall, without any delay, deliver the said power as aforesaid, and the Commission shall take the same and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

18. If and so often any interruption shall occur in the service of the Company due to any cause or causes other than those provided for by the next preceding paragraph hereof, the Company shall pay to the Commission as liquidated and ascertained damages, and not by way of penalty, as follows:—

For any interruption less than one hour double the amount payable for power which should have been delivered during the time of such interruption, and for any interruption of one hour or more, the amount payable for the power which should have been delivered during the time of such interruption, and five times the last mentioned amount in addition thereto, and all moneys payable under this paragraph, when the amount thereof is settled between the parties, may be deducted from any moneys payable by the Commission to the Company under this agreement, but such right of deduction shall not in any case delay the monthly payments for power contracted for by this agreement.

19. It is recognized by both parties hereto that the state of the art of production, transmission and application of electric energy is subject to constant advance, and that it is impossible by contract to cover all the requirements and conditions which time may develop: The Company and the Commission, with the approval of the Lieutenant-Governor in Council, while adhering to the provisions of this agreement, will at any time upon the request of the other, take up and in good faith fairly consider with the aid of the respective engineers any features or changes of the system as a whole, or any modifications of any of the provisions hereof, provided it shall appear to the party to whom such request is made that compliance therewith shall tend to make this agreement more effective and to make the venture of each party more successful and certain, provided, however, that any such action or the failure on the part of either party to require of the other exact conformity to the provisions of this agreement or any liberty or greater latitude to the other in course of the co-operation implied by the spirit of this agreement shall in no manner operate as or constitute a precedent or amend or change the obligation of the parties hereto.

20. This agreement is entered into subject to the provisions of the Power Commission Act and neither the making of this agreement, nor anything herein contained shall in any way limit or prejudice any rights and powers which the Commission may now have to expropriate the plant and apparatus of the said Company, or any other power company, but nothing in this agreement shall be taken to give or enlarge any power.

21. It is agreed that in case any dispute shall arise relating to the question of the performance and fulfilment of any of the terms, provisos or conditions

of this agreement, or as to the method or accuracy of the measurement of the power, or as to any question which may arise under this agreement, or as to the rights of any of the parties after the termination of this agreement, under paragraph 23, the same shall be determined by two independent persons, one to be chosen by each of the parties to such dispute and such persons before proceeding with the reference, shall appoint a third arbitrator to act with them, and the decision of the said three arbitrators or a majority of them, shall be conclusive on both parties, except as hereinafter provided, and in case either of the said parties shall neglect or fail to appoint an arbitrator within thirty days after the request in writing by the other party, then the arbitrator appointed by the other party may proceed alone and his award shall be conclusive on both parties except as hereinafter provided. The award shall be made within four months after the appointment of the first of such arbitrators, and in the event of the two arbitrators appointed as aforesaid being unable or unwilling to agree upon a third arbitrator within two weeks after their appointment or the appointment of the one of them who was last appointed, by the Chief Justice for the time being of the King's Bench Division of the High Court of Justice for the Province of Ontario, or in the event of the said Chief Justice being ill, absent from the Province or otherwise unable or refusing to act, then such third arbitrator shall be appointed by any judge of the High Court of Justice, or any Judge other than a local Judge. It is agreed that there may be an appeal by either party from any decision or award of such arbitrators to the High Court of Justice of Ontario, in accordance with the provisions of the Arbitration Act in that behalf.

22. In case the plant, apparatus, buildings or premises of the Company or any part thereof, shall at any time during the continuance of the agreement be damaged or destroyed so as to prevent the Company from supplying the said power of the quantity and quality hereinbefore provided for to the Commission, the Company shall use its best endeavors to procure the said supply of power for the Commission, otherwise or elsewhere.

23. If at any time that the quantity of power which is being taken under this agreement by the Commission shall amount to sixty per cent. or more of the total power which the Company is developing, and a complaint is then made in writing by the Commission to the Company that the Company has so continuously neglected or failed to perform the terms of this agreement that the apparatus of the Commission or its customers cannot by reason of such neglect or failure of the Company be operated to full efficiency and the Company shall not within a reasonable time remedy such neglect or failure, then the matter of complaint may be referred to the Lieutenant-Governor in Council, and if he determine that there is a just ground of complaint, he may direct that the Company shall within a time to be fixed by him, remedy such neglect or failure, and if such neglect or failure be not remedied as directed by him, the Lieutenant-Governor in Council may order that upon such terms as he may deem reasonable, including the rights of other parties, interested, the whole of the plant, apparatus and property of the Company shall be transferred to the Commission, whereupon payment and satisfaction of the said terms, the amount of which payment and satisfaction is to be settled by the arbitrators appointed as hereinbefore stated, the Commission may, with the approval of the Lieutenant-Governor in Council, take over the plant, apparatus and property and the same shall be transferred to the Commission.

24. In case the Municipal Corporation which shall contract with the Commission for a supply of power, or any person, firm or corporation which shall contract with any such Municipal Corporation, or with the Commission for a supply

of power furnished to the Commission by the Company, shall suffer damages by the act or neglect of the Company, and such Municipal Corporation, person, firm or corporation would, if the Company had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such Municipal Corporation, person, firm or corporation, and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such Municipal Corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such Municipal Corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceedings or action is unsuccessful. The rights and remedies of any such Municipal Corporation, person, firm or corporation shall not be hereby prejudiced.

25. Subject to the provisions of paragraphs 17 and 22 of this agreement, notwithstanding there may be differences between the parties hereto as to the supply or sufficiency of the said power, or the payment therefor, or any other questions whatsoever which may arise under this agreement, the Company shall continue to deliver the power and the Commission to pay therefor, and both parties shall continue to carry out the contract notwithstanding such differences; and when the matters which may be so in issue shall be finally determined by the reference to arbitration in the manner provided by paragraph 21 hereof, the parties shall deal with such matters according to the terms of the award which may be made upon reference. It being the distinct agreement between the parties that there shall not be during the period of this agreement any stoppage or cessation in the supply of the said power or on the payments therefor, but that the same shall be continued as if there was no such difference.

26. Provided this agreement continues so long, the Company shall not, prior to the ninth day of December, 1926, directly or indirectly, supply power to any municipality, or to any person, firm or corporation therein, while such municipality is supplied by the Commission under any existing contract or under a contract entered into before the 31st day of January, 1911. Provided this agreement continues so long, the Commission shall not, prior to the ninth day of December, 1926, directly or indirectly, supply power to any municipality, or to any person, firm or corporation therein, while such municipality is supplied by the Company under any existing contract or under a contract entered into before the 31st day of January, 1911, and the Commission shall not supply power at a price less than the price hereinbefore stipulated to be paid to the Company for power together with the cost of transforming, transmitting and disposing of the same to the customers of the Commission added thereto, provided always that in no case shall the Commission sell or dispose of power at a price less than the actual cost of the same, together with all charges and expenses in connection with the disposal and sale of the same added thereto.

27. Notwithstanding anything hereinbefore contained this agreement shall not come into operation as against the Commission or be binding upon the Commission until, in addition to any other Orders-in-Council, pursuant to said Act an Order-in-Council has been passed and approved by the Lieutenant-Governor-in-Council expressly declaring that this agreement shall from the date of such Order-in-Council be binding upon the Commission, but this shall in no way interfere with the agreement contained in paragraph 3 (a), and the Commission undertakes to do all things lawful in its power that may be needed to bring this agreement into

operation at as early a date as possible and to procure the assent and declaration of the said Lieutenant-Governor-in-Council above referred to and the said Company agrees to co-operate with the Commission by all means in its power to carry out the object of this agreement.

28. This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

IN WITNESS WHEREOF the Commission and the Company have respectively affixed their corporate seals and the hands of their proper officers.

Acting upon the request of the various municipalities the Legislative Assembly passed the following, "An Act to amend an Act," being 9 Edw. VII., Chap. 19, as follows:—

An Act to amend an Act passed in the 7th Year of His Majesty's Reign, Chaptered 19, intituled "An Act to provide for the transmission of Electrical Power to Municipalities," to validate certain contracts entered into with the Hydro-Electric Power Commission of Ontario, and for other purposes.

Assented to 29th March, 1909.

Preamble. WHEREAS by Acts passed in the 6th and 7th years of His Majesty's Reign, Chaptered 15 and 19 respectively, and each entitled *An Act to provide for the transmission of Electrical Power to Municipalities,* it is amongst other things provided that under certain conditions and subject to certain provisions therein set forth a contract may be entered into and executed by the Hydro-Electric Power Commission of Ontario and any Municipal Corporation for the purposes mentioned in the said recited Acts; and whereas in intended pursuance of the said recited Acts a contract in the form set out in Schedule "A" to this Act has been executed by all the Corporations mentioned therein except the Corporations of Hamilton, Brantford, and Galt; and whereas the Municipal Council of the Corporation of Galt has approved of and has authorized the execution of the said contract by said Corporation; and whereas as appears by the said contract, it was contemplated that the Corporations of Hamilton and Brantford would also execute it, but they have not yet done so; and whereas owing to unforeseen causes it may become impossible to supply power by the 19th day of December, 1909, as provided in the said contract; and whereas doubts have been raised as to the validity and binding character of the said contract and as to the authority of the Councils of the said Corporations to authorize and direct the execution of the said contracts and to bind the said Corporations thereby: and whereas the Corporations which have executed the said contract and the said Corporation of Galt, although it has not executed the said contract, are desirous that they shall have the benefits of the provisions of the said recited Acts and of the said contract made available to them without delay and that their enjoyment of such benefits should not be postponed by unnecessary and vexatious litigation; and whereas the Corporation of Stratford and the Corporation of Hespeler have applied to

vary the Schedule to the said contract as hereinafter set forth; and whereas the Corporation of Ingersoll has applied to be added as parties to the said contract; and whereas it is expedient to remove such doubts and to validate the said contract as varied in the manner hereinafter provided:

Therefore His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

Short title.

1. This Act may be cited as *The Power Commission Amendment Act, 1909.*

Contract varied

2. The contract mentioned in the preamble to this Act and set out in the Schedule hereto shall be and the same is hereby varied,—

(*a*) By striking out the words "Hamilton" and "Brantford," and all words and figures relating thereto;

(*b*) By striking out paragraph 16 thereof;

(*c*) By adding the Corporation of the Town of Ingersoll as one of the parties of the second part, and inserting in the said Schedule the word "Ingersoll" in column 1, and in columns 2, 5, 6 and 7 respectively opposite that word the figures "500, $24, $69,485, $3,270";

(*d*) By substituting opposite the word "Stratford" in said Schedule, for the figures in columns 2, 5, 6 and 7, the following figures, "1,000, $27.10, $173,580, $8,120"; by substituting opposite the word "Hespeler" in said column 1 of said Schedule the figures "300" for "400," and by substituting for the words and figures "19th day of December, 1909," in clause (*b*) of paragraph 1 of the said contract the words and figures "19th day of March, 1910, or on any earlier day on which the Commission shall be prepared to supply the same"; and

(*e*) By adding to paragraph 11 the following words, "No power shall be supplied by any municipal corporation to any railway or distributing company, or any other corporation or person without the written consent of the Commission."

Contract as varied to be binding on certain municipal corporations.

3. Notwithstanding any provision of any by-law of the council of any of the corporations hereinafter in this section mentioned to the contrary, the said contract as so varied shall be and the same is hereby declared to be valid and binding according to the terms thereof upon the Corporation of the City of Toronto, the Corporation of the City of London, the Corporation of the City of Guelph, the Corporation of the City of Stratford, the Corporation of the City of St. Thomas, the Corporation of the City of Woodstock, the Corporation of the Town of Berlin, the Corporation of the Town of Galt, the Corporation of the Village of Hespeler, the Corporation of the Town of St. Mary's, the Corporation of

the Town of Preston, the Corporation of the Town of Waterloo, the Corporation of the Village of New Hamburg, and the Corporation of the Town of Ingersoll.

Contract as varied confirmed.

4. It is hereby further declared and enacted that the validity of the said contract as so varied as aforesaid shall not be open to question and shall not be called in question on any ground whatever in any Court, but shall be held and adjudged to be valid and binding on all the corporations mentioned in section 3, and each and every of them according to the terms thereof as so varied as aforesaid and shall be given effect to accordingly.

Contract to be deemed to have been executed by town of Galt.

5. The said contract as so varied as aforesaid shall be treated and conclusively deemed to have been executed by the Corporation of the Town of Galt.

Contract to be deemed to be a contract executed in corporations named.

6. The said contract as so varied as aforesaid shall be conclusively deemed to be a contract executed by the Corporations mentioned in section 3, within the meaning of the said recited Acts, and the Commission therein named may carry out and execute the same and shall have power and authority to do all acts necessary for that purpose, and it shall not be necessary that the said contract as so varied as aforesaid be approved of by the Lieutenant-Governor in Council.

Corporations to be deemed to have contracted with Commission.

7. The Corporations mentioned in section 3, and each and every of them shall be conclusively deemed to have entered into a contract with the Commission within the meaning of the said recited Acts, and to have and to be entitled to exercise all the powers mentioned in the said Acts, which are thereby conferred upon a Corporation which has entered into such a contract.

Pending actions stayed.

8. Every action which has been heretofore brought and is now pending wherein the validity of the said contract or any by-law passed or purporting to have been passed authorizing the execution thereof by any of the Corporations hereinbefore mentioned is attacked or called in question, or calling in question the jurisdiction, power or authority of the Commission or of any Municipal Corporation or of the Councils thereof or of any or either of them to exercise any power or to do any of the acts which the said recited Acts authorize to be exercised or done by the Commission or by a Municipal Corporation or by the Council thereof, by whomsoever such action is brought shall be and the same is hereby forever stayed.

Contracts for construction of works confirmed.

9. The contract between the Hydro-Electric Power Commission of Ontario and the F. H. McGuigan Construction Company is hereby declared to be legal and valid, and the Commission may carry out and execute said contract, and, in addition to all other powers of the said Commission, the Commission shall have power and authority to do all acts necessary for the purposes of said contract.

Commission may acquire easements.

10. In addition to all other powers, the Commission may, by purchase, lease or otherwise or without the consent of the owners thereof or persons interested therein, acquire, enter upon and take possession of and use a right or easement to construct, erect, maintain and operate transmission lines with all other plant appliances and equipment required therefor to transmit electricity at such voltage as the Commission may determine, through, over, under, along or across any lands and premises, public highways or public places, streams, waters, water-courses, bridge, viaduct or railway.

Municipality may make contracts when authorized by vote of electors.

11. Where a municipal corporation not a party to the contract set forth in Schedule A, as varied by this Act applies for a supply of power and a question has been heretofore or is hereafter submitted to the vote of the electors of the municipality pursuant to paragraph 1*a* of section 533 of *The Consolidated Municipal Act, 1903*, and the amendments thereto, including the amendment made during the present session as to a supply of electric power from the Commission and the electors have voted in favor of a supply from the Commission, the Council of the corporation of such municipality may authorize the entering into and such corporation may enter into a contract with the Commission in the form set forth in the said schedule or with such variations thereof as may be approved by the Lieutenant-Governor in Council, without submitting a by-law approving the same for the assent of the electors as provided by sub-section 1 of section 13 of *The Power Commission Act*, and when executed such contract shall be legal, valid and binding.

7 Edw. VII., c. 19.

Debentures may be issued within two years.

12. Notwithstanding anything contained in the by-law of the council of any of the municipalities mentioned in section 3, it shall be sufficient if the debentures thereby authorized are issued within two years from the passing of the by-law.

7 Edw. VII., c. 19, s. 25, subs. 1, amended.

13. Subsection 1 of section 25 of *The Power Commission Act* is amended by striking out of the fourth and fifth lines thereof, the words "Section 8 of Chapter 3 of The Revised Statutes of Ontario, 1897," and substituting therefor the words "Section 7 of *The Interpretation Act*."

8 Edw. VII., c. 22, short title.

14. The Act passed in the 8th year of His Majesty's reign, Chaptered 22, intituled *An Act to validate certain By-laws passed and contracts made pursuant to An Act to provide for the transmission of Electrical Power to Municipalities*, may be cited as *The Power Commission Amendment Act, 1908*.

SCHEDULE "A."

This Indenture, made the 4th day of May, 1908, between The Hydro-Electric Power Commission of Ontario, acting herein on its own behalf and with the approval of the Lieutenant-Governor in Council, (hereinafter called the Commission), party of the First Part, and The Municipal Corporations of Toronto, Hamilton, London, Brantford, Guelph, Stratford, St. Thomas, Woodstock, Berlin, Galt, Hespeler, St. Mary's, Preston, Waterloo and New Hamburg, (hereinafter called the Corporations), party of the Second Part.

Whereas, pursuant to *An Act to Provide for Transmission of Electrical Power to Municipalities*, the Corporations applied to the Commission to transmit and supply such power from Niagara Falls, and the Commission entered into contracts, hereto attached, with the Ontario Power Company of Niagara Falls, (hereinafter called the Company), for such power at the prices set forth in the schedule hereto attached, and the Commission furnished the Corporations with estimates, as shown in said schedule, of the total cost of such power, ready for distribution within the limits of the Corporations, and the electors of the Corporations assented to by-laws authorizing the Corporations to enter into a contract with the Commission for such power, and the Commission have estimated the line loss and the cost to construct, operate, maintain, repair, renew and insure a line to transmit, nominally, 30,000 horse power with total capacity of 60,000 horse power of such power to the Corporations, and have apportioned the part of such cost to be paid by each Corporation as shown in said schedule;

Now, therefore, this Indenture witnesseth that in consideration of the premises and of the agreements of the Corporations herein set forth, subject to the provisions of said Act and of the said contracts, the Commission agrees with the Corporations respectively:—

1.—(*a*) To construct a line to transmit the quantities of electric power shown in column 2 of the said schedule from Niagara Falls to the Corporations shown in column 1, respectively.

(*b*) On the 19th day of December, 1909, to supply said power in quantities set forth in column 2 of said schedule, or as a minimum 40 per cent. less, if written notice of minimum required is given on or before 19th July, 1909, to the Corporations within the limits thereof, ready for distribution at approximately the number of volts set forth in column 4 of said schedule, and approximately 25 cycles per second frequency.

(*c*) At the expiration of three months' written notice, which may be given by the Corporations or any of them from time to time during the continuance of this agreement, to supply from time to time to the Corporations in blocks of not less than 1,000 horse power each, additional power until the total amount so supplied shall amount to 30,000 horse power.

(*d*) At the expiration of nine months' like notice which may be given by the Corporations or any of them from time to time during the continuance of this agreement, to supply from time to time to the Corporations in blocks of not less than 1,000 horse power each, additional power until the total amount so supplied shall amount to 100,000 horse power.

(*e*) To use at all times first-class, modern, standard, commercial apparatus and plant, and to exercise all due skill and diligence so as to secure the most perfect operation of the plant and apparatus of the Corporations.

In consideration of the premises and of the agreements herein set forth each of the Corporations for itself, and not one for the other, agrees with the Commission:—

2.—(*a*) Subject to the provisions of paragraph 2 (*g*), hereof, to pay the Commission for the quantities of power shown in column 2 of said schedule, or 40 per cent. less as a minimum, to be supplied at said date, and for such additional power supplied or held in reserve upon such notices, the price set forth in column 3 of said schedule in twelve monthly payments, in gold coin of the present standard of weight and fineness, and bills shall be rendered by the Commission on or before the fourth and paid by the Corporations on or before the fifteenth of each month. If any bill remains unpaid for fifteen days, the Commission may, in addition to all other remedies and without notice, discontinue the supply of such power to the Corporation in default until said bill is paid. No such discontinuance shall relieve the Corporation in default from the performance of the covenants, provisos, and conditions herein contained. All payments in arrears shall bear interest at the legal rate.

(*b*) To take electric power exclusively from the Commission during the continuance of this agreement; provided, if the Commission is unable to supply said power as quickly as required, the Corporations may obtain the supply otherwise until the Commission has provided such supply, thereupon the Corporations shall immediately take from the Commission; and the Corporations may generate, store or accumulate electric power for emergencies, or to keep down the peak load of the power taken from the Commission; and nothing herein contained shall affect existing contracts between the Corporations and other parties for a supply of electric power, but the Corporations shall determine said contracts at the earliest date possible.

(*c*) To pay, annually, interest at four per cent. per annum upon its proportionate part of the moneys expended by the Commission on capital

account for the construction of the said line, transformer stations and other necessary works shown, respectively, in column 6 of said schedule, subject to adjustment under paragraph 10.

(*d*) To pay an annual sum for its proportionate part of the cost of the construction of said line, stations and works, shown, respectively, in column 6 of said schedule, subject to adjustment under paragraph 10, so as to form in thirty years a sinking fund for the retirement of the securities to be issued by the Province of Ontario.

(*e*) To bear its proportionate part of the line loss and pay its proportionate part of the cost to operate, maintain, repair, renew and insure the said line, stations and works, shown, respectively, in column 7 of the said schedule, subject to adjustment under paragraph 10.

(*f*) To keep, observe and perform the covenants, provisos and conditions set forth in said contracts, intended by the Commission and the Company to be kept and observed and performed by the Corporations.

(*g*) To pay for three-fourths of the power supplied and held in reserve at said date and upon said notices, whether the said power is taken or not, and when the greatest amount of power taken for twenty consecutive minutes in any month shall exceed three-fourths of the amount during such twenty consecutive minutes, so supplied and held in reserve, to pay for this greater amount during that entire month. When the power factor of the greatest amount of power taken for said twenty minutes falls below 90 per cent., the Corporations shall pay for 90 per cent. of said power divided by the power factor.

(*h*) To take no more power than the amount to be supplied and held in reserve at said date and upon said notices.

(*i*) To use at all times first-class, modern, standard, commercial apparatus and plant to be approved by the Commission.

(*j*) To exercise all due skill and diligence so as to secure the most perfect operation of the plant and apparatus of the Commission and the Company.

3. If, as therein provided, the said contracts are continued until 19th December, 1939, this agreement shall remain in force until that date.

4. Said power shall be three phase, alternating, commercially continuous twenty-four hour power every day of the year except as provided in paragraph 6 hereof, and shall be measured by curve-drawing meters, subject to test as to accuracy by either party hereto.

5. The engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Corporations and take records at all reasonable times on giving to the Corporations six hours' notice of the intention to make such inspection. The Corporations shall have a like right on giving a like notice to inspect the apparatus, plant and property of the Commission.

6. In case the Commission or the Company shall at any time or times be prevented from supplying said power, or any part thereof, or in case the Corporations shall at any time be prevented from taking said power, or any part thereof, by strike, lock-out, riot, fire, invasion, explosion, act of God, or the King's enemies, or any other cause reasonably beyond their control, then the Commission shall not be bound to deliver such power during such time and the Corporations shall not be bound to pay the price of said power at Niagara Falls during such time, but the Corporations shall continue to make all other payments, but as soon as the cause of such interruption is removed the Commission shall without any delay supply said power as aforesaid and the Corporations shall take the same and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

7. If, and so often as, any interruption shall occur in the service of the Company due to any cause or causes, other than those provided for by the next preceding paragraph hereof, the Commission shall recover and pay to the Corporations as liquidated and ascertained damages, and not by way of penalty, as follows: For any interruption less than one hour double the amount payable for power which should have been supplied during the time of such interruption; and for any interruption of one hour or more, the amount payable for the power which should have been supplied during the time of such interruption and twelve times the last mentioned amount in addition thereto, and all moneys payable under this paragraph when the amount thereof is settled between the Commission and the Company may be deducted from any moneys payable by the Corporations to the Commission,

but such right of deduction shall not in any case delay the said monthly payments.

8. The maintenance by the Commission of approximately the agreed voltage at approximately the agreed fequency at the substation in the limits of the Corporation shall constitute the supply of all power involved herein and the fulfilment of all operating obligations hereunder; and when voltage and frequency are so maintained, the amount of the power, its fluctuations, load factor, power factor, distribution as to phases, and all other electric characteristics and qualities are under the sole control of the Corporations, their agents, customers, apparatus, appliances and circuits.

9. In case any municipal corporation, or any person, firm or corporation which shall contract with the Commission or with any municipal corporation for a supply of power furnished to the Commission by the Company shall suffer damages by the act or neglect of the Company, and such municipal corporation, person, firm or corporation would, if the Company had made the said contracts directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceeding or bring such action for or on behalf of such municipal corporation, person, firm, or corporation, and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceeding or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

10. The Commission shall at least annually adjust and apportion the amounts payable by municipal corporations for such power and such interest, sinking fund, line loss, and cost of operating, maintaining, repairing, renewing and insuring the line and works.

11. If at any time, any other municipal corporation, or pursuant to said Act, any railway or distributing company or any other corporation or person, applies to the Commission for a supply of power, the Commission shall notify the applicant and the Corporations, parties hereto, in writing, of a time and place and hear all representations that may be made as to the terms and conditions for such supply.

Without discrimination in favor of the applicants as to the prices to be paid, for equal quantities of power, the Commission may supply power upon such terms and conditions as may, having regard to the risk and expense incurred, and paid, and to be paid by the Corporations, parties hereto, appear equitable to the Commission, and are approved by the Lieutenant-Governor in Council.

No such application shall be granted if the said line is not adequate for such supply, or if the supply of the Corporations, parties hereto, will be thereby injuriously affected, and no power shall be supplied within the limits of a municipal corporation taking power from the Commission at the time of such application, without the written consent of such Corporation.

In determining the quantity of power supplied to a municipal corporation, the quantity supplied by the Commission within the limits of the Corporation to any applicant, other than a municipal corporation, shall be computed as part of the quantity supplied to such Corporation, but such Corporation shall not be liable to pay for the power so supplied, or otherwise in respect thereof.

12. It is hereby declared that the Commission is to be a trustee of all property held by the Commission under this agreement for the Corporations and other municipal corporations supplied by the Commission, but the Commission shall be entitled to a lien upon said property for all moneys expended by the Commission under this agreement and not repaid. At the expiration of this agreement the Commission shall determine and adjust the rights of the Corporations and other municipal corporations, supplied by the Commission, having regard to the amounts paid by them, respectively, under the terms of this agreement, and such other considerations as may appear equitable to the Commission and are approved by the Lieutenant-Governor in Council.

13. Each of the Corporations agrees with the other:—

(*a*) To take electric power exclusively from the Commission during the continuance of this agreement, subject to the provisos above set forth in paragraph 2 (*b*).

(*b*) To co-operate, by all means in its power, at all times, with the

Commission, to increase the quantity of power required from the Commission, and in all other respects to carry out the objects of this agreement and of the said Act.

14. If differences arise between the Corporations the Commission may upon application fix a time and place to hear all representations that may be made by the parties, and the Commission shall, in a summary manner, when possible, adjust such differences, and such adjustment shall be final. The Commission shall have all the powers that may be conferred upon a Commissioner appointed under *The Act respecting Enquiries concerning Public Matters.*

15. This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

16. Notwithstanding anything hereinbefore contained this agreement shall not come into operation as against the Commission or be binding upon the Commission until, in addition to any other orders-in-council, pursuant to said Act, an order-in-council has been passed and approved by the Lieutenant-Governor in Council expressly declaring that this agreement shall from the date of such order-in-council be binding upon the Commission.

In witness whereof the Commission and the Corporations have respectively affixed their corporate seals and the hands of their proper officers.

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

A. BECK.
JOHN S. HENDRIE.
W. K. MCNAUGHT.

THE CORPORATION OF THE CITY OF TORONTO.

JOSEPH OLIVER, Mayor.
(L.S.)
R. T. COADY, Treasurer.

THE CORPORATION OF THE CITY OF LONDON.

S. STEVELY, Mayor.
(L.S.)
S. BAKER. Clerk.

THE CORPORATION OF THE CITY OF GUELPH.

JOHN NEWSTEAD, Mayor.
(L.S.)
T. J. MOORE, City Clerk.

THE CORPORATION OF THE CITY OF STRATFORD.

W. S. DINGMAN, Mayor.
(L.S.)
R. R. LANG, City Clerk.

THE CORPORATION OF THE CITY OF ST. THOMAS.

GEO. GEDDES, Mayor.
(L.S.)
S. O. PERRY, City Treasurer.

THE CORPORATION OF THE CITY OF WOODSTOCK.

R. G. SAWTELL, Mayor.
(L.S.)
JOHN MORRISON, City Clerk.

THE CORPORATION OF THE TOWN OF BERLIN.

ALLEN HUBER. Mayor.
(L.S.)
A. H. MILLAR. Clerk.

THE CORPORATION OF THE TOWN OF HESPELER.

G. D. FORBES,
Mayor.

(L.S.)

WINFIELD BREWSTER,
Clerk.

THE CORPORATION OF THE TOWN OF ST. MARY'S.

JOHN WILLARD,
Mayor.

(L.S.)

L. HARSTONE,
Clerk.

THE CORPORATION OF THE TOWN OF PRESTON.

FREDERICK CLARE,
Mayor.

(L.S.)

H. C. EDGAR,
Clerk and Treasurer.

THE CORPORATION OF THE TOWN OF WATERLOO.

I. B. FISCHER,
Mayor.

(L.S.)

A. B. MCBRIDE,
Clerk.

THE CORPORATION OF THE VILLAGE OF NEW HAMBURG.

J. F. KATZENMEIER,
Reeve.

(L.S.)

WILLIAM MILLER,
Clerk.

THE CORPORATION OF THE TOWN OF INGERSOLL.

GEORGE SUTHERLAND,
Mayor.

(L.S.)

W. R. SMITH,
Clerk.

SCHEDULE B.

Column 1	2	3	4	5	6	7
Name of Municipal Corporation.	Quantity of power applied for in H.P.	Maximum price of power at Niagara Falls.	No. of volts.	Estimate maximum cost of power ready for distribution in municipality.	Estimate proportionate part of cost to construct transmission line, transformer stations and works for nominally 30,000 H.P., with total capacity of 60,000 H.P.	Estimate proportionate part of line loss and of part cost to operate, maintain, repair, renew and insure transmission line, transformer stations and works for nominally 30,000 H.P., with total capacity of 60,000 H.P.
Toronto	10,000	$9.40 for power at 12,000 volts until 25,000 H.P. or more are taken, then $9.00 for all. $10.40 for power at 60,000 volts until 25,000 H.P. or more are taken, then $10.00 for all. If power taken at higher voltage, price to be fixed by arbitration.	Number required by each Corporation.	$18 10	$828,080	$38,970
Hamilton	1,500			17 50	115,650	5,442
London	5,000			23 50	671,080	31,578
Brantford	1,500			21 50	172,770	8,134
Guelph	2,500			24 00	347,420	16,350
Stratford	1,500			24 50	215,600	10,146
St. Thomas	1,500			26 50	244,140	11,490
Woodstock	1,200			23 00	155,350	7,310
Berlin	1,000			24 00	138,970	6,540
Galt	1,200			22 00	143,920	6,773
Hespeler	400			26 00	63,200	2,974
St. Mary's	500			29 50	95,677	4,502
Preston	600			23 50	80,530	3,789
Waterloo	685			24 50	98,460	4,630
New Hamburg	250			29 50	47,830	2,251

In the month of March the Commission asked Mr. Ralph D. Mershon, of New York, a consulting engineer of international reputation, to make an investigation as to the physical features of the Hydro-Electric scheme. Mr. Mershon came to Toronto and spent several days on the work. He reported that the work, as submitted, gives every evidence of careful thought, and would successfully transmit the power for which it is designed.

During this year the City of Hamilton, after receiving an emphatic mandate from the electors, took up the question of a supply of power with the Commission. After many meetings they finally concluded the contract to take 1,000 horse power from the Commission.

All of which is respectfully submitted.

BINDING SECT. AUG 25 1967